Washington Water Supply Outlook Report June 1, 2007

Conservation Service

United States Department of Agriculture

Water Supply Outlook Reports
and
Federal - State - Private
Cooperative Snow Surveys

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How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

Washington
Water Supply Outlook

June 2007

General Outlook

The month of May was just plain hot and dry. Snowpack melt rates of 1-2 inches per day were observed at most all sites, particularly during the 5-day hot spell at the end of the month. New record high average temperatures were set at virtually all SNOTEL sites during that period with many setting new records daily from May 30 – June 3. At this time the Climate Prediction Center is forecasting near normal climate conditions for June but warmer and dryer than average for the rest of the summer. SNOTEL summer maintenance has begun so watch for crew members coming through your area sometime this summer. If you want to know just when and or would like to tag along let one of us know. In cooperation with the North Cascade and Mt. Rainier National Parks I have included the results of their glacier study work and posted on the web at:
http://www.wa.nrcs.usda.gov/snow/data/NPS_GlacierPage_2007.pdf

Snowpack

The June 1 statewide SNOTEL readings were 67% of average, down 31% from May 1. 11 out of 35 basins were completely melted out by June 1 as well. Readings in the North Cascade river basins reported the highest remaining snowpack at 89% of average. Westside averages from SNOTEL, and June 1 snow surveys, included the North Puget Sound river basins with 71% of average, the Central Puget river basins with 63%, and the Lewis-Cowlitz basins with 70% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 62% and the Wenatchee area with 68%. Snowpack in the Spokane River Basin was at 30%. Maximum snow cover in Washington was at Brown Top snow course, with water content of 58.6 inches. Last year at this time Brown Top had 43.8 inches of snow water. The highest average in the state was at Alpine Meadows SNOTEL with 111% of average.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	54	30
Newman Lake	0	0
Pend Oreille	74	54
Okanogan	81	62
Methow	91	79
Conconully Lake	0	0
Wenatchee	75	77
Chelan	66	59
Upper Yakima	64	68
Lower Yakima	48	56
Ahtanum Creek	0	0
Walla Walla	0	0
Lower Snake	29	12
Cowlitz	68	75
Lewis	36	65
White	65	80
Green	93	83
Puyallup	65	79
Cedar	8	5
Snoqualmie	81	86
Skykomish	64	77
Skagit	102	89
Baker	N/A	N/A

Precipitation

During the month of May, the National Weather Service and Natural Resources Conservation Service climate stations reported much below average precipitation totals throughout Washington river basins. The highest individual site percent of average in the state was at Wenatchee which reported 359% of average for a total of 1.83 inches. In contrast Rimrock Lake reported the lowest monthly total with only .15 inches or 15% of the average. The wettest spot in the state was reported at Sheep Canyon SNOTEL with a May accumulation of 4.5 inches but still only 62% of average. Lower Yakima River Basin reported the lowest with only 28% of average for the month and Wenatchee-Chelan had the highest with 89%. Regardless of several dry months Washington still remains near to above average for the water-year.

RIVER BASIN	MAY PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	48	99
Colville-Pend Oreille	68	104
Okanogan-Methow	49	104
Wenatchee-Chelan	89	111
Upper Yakima	61	112
Lower Yakima	28	112
Walla Walla	52	96
Lower Snake	58	90
Cowlitz-Lewis	50	103
White-Green-Puyallup	59	109
Central Puget Sound	63	118
North Puget Sound	50	115
Olympic Peninsula	63	104

Reservoir

Seasonal reservoir levels in Washington vary greatly due to specific watershed management practices required in preparation for irrigation season, fisheries management, power generation, municipal demands and flood control. Reservoir storage in the Yakima Basin was 831,000-acre feet, 114% of average for the Upper Reaches and 231,000-acre feet, 113% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 109% of average for June 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 214,000 acre feet, 79% of average and 90% of capacity; Chelan Lake, 516,000-acre feet, 109% of average and 76% of capacity; Skagit River reservoirs at 116% of average and 87% of capacity and the Cowlitz – Lewis reservoir systems with 3,308,000-acre feet of storage.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	90	79
Colville-Pend Oreille	85	97
Okanogan-Methow	98	109
Wenatchee-Chelan	76	109
Upper Yakima	100	114
Lower Yakima	100	113
Lower Snake	95	109
Cowlitz-Lewis	N/A	N/A
North Puget Sound	87	116

For more information contact your local Natural Resources Conservation Service office.

Streamflow

Most all streamflow forecasts in the state dropped slightly from last months predictions due to above average temperatures and higher that normal snowpack melt rates. June-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 83%; White River, 91%; and Skagit River, 99%. Some Eastern Washington streams include the Yakima River near Parker, 86%: Wenatchee River at Plain, 98%; and Walla Walla River near Milton-Freewater, 88%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. Caution should be used when using early season forecasts for critical water resource management decisions.

Statewide May streamflows varied greatly primarily due to above average temperatures and reservoir control during the month. The Methow at Pateros had the highest reported flows with 122% of average. The Walla Walla near Milton, OR with 45% of average was the lowest in the state. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 66%; the Spokane at Spokane, 65%; and the Bumping near Nile, 103%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	50-91
Colville-Pend Oreille	52-107
Okanogan-Methow	73-105
Wenatchee-Chelan	89-105
Upper Yakima	98-93
Lower Yakima	61-97
Walla Walla	87-88
Lower Snake	50-52
Cowlitz-Lewis	85-91
White-Green-Puyallup	80-91
Central Puget Sound	83-86
North Puget Sound	98-100
Olympic Peninsula	91-92

STREAM	PERCENT OF AVERAGE MAY STREAMFLOWS
Pend Oreille Below Box Canyon	92
Kettle at Laurier	84
Columbia at Birchbank	108
Spokane at Long Lake	65
Similkameen at Nighthawk	108
Okanogan at Tonasket	104
Methow at Pateros	122
Chelan at Chelan	121
Wenatchee at Pashastin	103
Yakima at Cle Elum	90
Yakima at Parker	96
Naches at Naches	99
Grande Ronde at Troy	56
Snake below Lower Granite Dam	72
SF Walla Walla near Milton Freewater	45
Columbia River at The Dalles	89
Lewis at Ariel	63
Cowlitz below Mayfield Dam	76
Skagit at Concrete	104

For more information contact your local Natural Resources Conservation Service office.

BASIN SUMMARY OF SNOW COURSE DATA

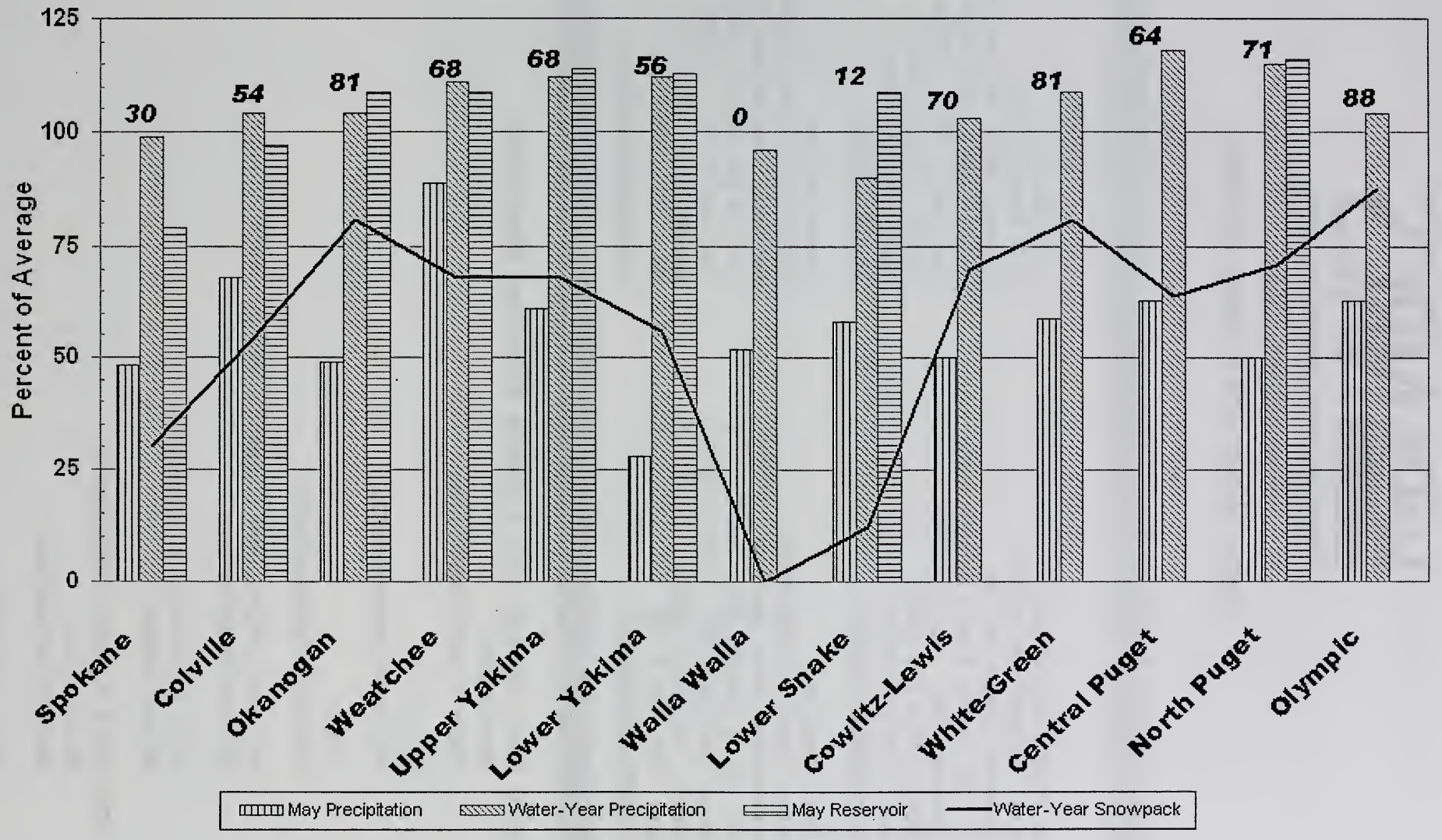
JUNE 2007

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ALPINE MEADOWS SNTL	3500	6/01/07	51	35.0	37.8	31.4
BADGER PASS SNOTEL	6900	6/01/07	35	18.1	15.8	22.9
BARKER LAKES SNOTEL	8250	6/01/07	15	7.6	4.6	9.5
BASIN CREEK SNOTEL	7180	6/01/07	0	.0	.0	4.1
BEAVER CREEK TRAIL	2200	5/29/07	0	.0	.0	--
BEAVER PASS	3680	5/29/07	41	18.4	18.6	--
BEAVER PASS SNOTEL	3680	6/01/07	43	22.6	24.6	16.8
BIG WHITE MTN CAN.	5510	5/30/07	2	1.3	4.4	8.0
BLACK PINE SNOTEL	7100	6/01/07	0	.0	.0	1.9
BLACKWALL PEAK CAN.	6370	6/01/07	---	18.7	10.8	--
BLEWETT PASS#2SNOTEL	4270	6/01/07	0	.0	.0	.0
BRENDA MINE CAN.	4450	6/01/07	---	.0	.0	2.7
BROWN TOP AM	6000	5/29/07	110	58.6	43.8	--
BUMPING RIDGE SNOTEL	4600	6/01/07	0	.0	10.8	11.6
BUNCHGRASS MDWSNOTEL	5000	6/01/07	0	.0	9.6	9.7
BURNT MOUNTAIN PIL	4200	6/01/07	0	.0	.0	.4
CAYUSE PASS SNOTEL	5200	6/01/07	52	33.9	--	--
CHICKEN CREEK	4060	5/31/07	0	.0	.0	.0
COMBINATION SNOTEL	5600	6/01/07	0	.0	.0	.0
COPPER BOTTOM SNOTEL	5200	6/01/07	0	.0	.0	.0
CORRAL PASS SNOTEL	6000	6/01/07	53	24.8	28.0	23.1
COUGAR MTN. SNOTEL	3200	6/01/07	0	.0	.0	1.5
DALY CREEK SNOTEL	5780	6/01/07	0	.0	.0	.0
DEVILS PARK	5900	5/28/07	70	36.6	30.2	--
DISCOVERY BASIN	7050	5/29/07	7	2.0	.2	2.4
DUNGENESS SNOTEL	4100	6/01/07	0	.0	.0	.0
ELBOW LAKE SNOTEL	3200	6/01/07	0	.1	3.1	19.8
EMERY CREEK SNOTEL	4350	6/01/07	0	.0	.0	.0
ENDERBY CAN.	5800	6/03/07	50	28.0	37.0	37.8
FISH LAKE SNOTEL	3370	6/01/07	0	.0	5.8	7.5
FLATTOP MTN SNOTEL	6300	6/01/07	62	31.0	33.5	36.5
FREEZEOUT CK. TRAIL	3500	5/29/07	0	.0	.0	--
FROHNER MDWS SNOTEL	6480	6/01/07	0	.0	.0	.7
GRAVE CRK SNOTEL	4300	6/01/07	0	.0	.0	.0
GREEN LAKE SNOTEL	6000	6/01/07	0	.0	9.4	6.6
GROUSE CAMP SNOTEL	5380	6/01/07	0	.0	.0	.2
HAND CREEK SNOTEL	5030	6/01/07	0	.0	.0	.0
HARTS PASS SNOTEL	6500	6/01/07	56	28.2	25.0	29.2
HARTS PASS	6500	5/28/07	69	31.7	38.0	--
HELL ROARING DIVIDE	5770	5/31/07	21	10.4	14.3	10.8
HERRIG JUNCTION	4850	5/31/07	10	4.3	8.1	5.4
HIGH RIDGE SNOTEL	4920	6/01/07	0	.0	.0	1.2
HOODOO BASIN SNOTEL	6050	6/01/07	32	17.5	32.6	28.4
HUCKLEBERRY SNOTEL	2000	6/01/07	0	.0	.0	--
HUMBOLDT GLCH SNOTEL	4250	6/01/07	---	.0	.0	.0
JUNE LAKE SNOTEL	3200	6/01/07	0	.0	20.8	10.1
KRAFT CREEK SNOTEL	4750	6/01/07	0	.0	.0	.0
LOLO PASS SNOTEL	5240	6/01/07	0	.0	.5	4.9
LONE PINE SNOTEL	3800	6/01/07	18	13.2	29.2	18.4
LOOKOUT SNOTEL	5140	6/01/07	0	.0	.0	8.0
LOST HORSE SNOTEL	5000	6/01/07	0	.0	.0	.2
LOST LAKE SNOTEL	6110	6/01/07	---	21.9	33.5	41.5
LUBRECHT SNOTEL	4680	6/01/07	0	.0	.0	.0
LYMAN LAKE SNOTEL	5900	6/01/07	82	48.8	53.0	50.8
MARTEN RIDGE SNOTEL	3560	6/01/07	50	25.0	--	--
MEADOWS CABIN	1900	5/28/07	0	.0	.0	--
MEADOWS PASS SNOTEL	3240	6/01/07	0	.0	.0	.9
M F NOOKSACK SNOTEL	4980	6/01/07	78	51.3	47.7	--
MICA CREEK SNOTEL	4510	6/01/07	0	.0	.0	.0
MINERS RIDGE SNOTEL	6200	6/01/07	59	10.2	38.7	42.5
MISSION CREEK CAN.	5840	6/01/07	---	1.5	8.4	13.0
MORRISSEY RIDGE CAN.	6100	6/01/07	---	.0	.0	--
MORSE LAKE SNOTEL	5400	6/01/07	38	20.5	41.3	33.6
MOSES MTN SNOTEL	4800	6/01/07	0	.1	.0	.1
MOSQUITO RDG SNOTEL	5200	6/01/07	---	.0	6.8	11.0
MOUNT CRAG SNOTEL	4050	6/01/07	8	4.7	.0	7.8
MT. KOBAU CAN.	5500	5/31/07	0	.0	8.7	5.2
MOWICH SNOTEL	3150	6/01/07	0	.0	.0	--
MOUNT GARDNER SNOTEL	2860	6/01/07	0	.0	.0	.0
N.F. ELK CR SNOTEL	6250	6/01/07	0	.0	.0	.6
NEVADA RIDGE SNOTEL	7020	6/01/07	0	.0	.0	3.4
NEW HOZOMEEN LAKE	2800	5/29/07	0	.0	.0	--
NEZ PERCE CMP SNOTEL	5650	6/01/07	0	.0	.0	.3
NOISY BASIN SNOTEL	6040	6/01/07	46	20.9	28.4	30.1
NORTH FORK JOCKO	6330	5/24/07	28	13.4	19.8	23.3
OLALLIE MDWS SNOTEL	3960	6/01/07	55	27.0	32.6	31.8
PARADISE PARK SNOTEL	5500	6/01/07	82	57.4	63.1	61.6
PARK CK RIDGE SNOTEL	4600	6/01/07	0	3.5	17.0	11.5
PETERSON MDW SNOTEL	7200	6/01/07	11	3.6	.0	2.7
PIGTAIL PEAK SNOTEL	5900	6/01/07	54	26.7	48.2	39.9
PIKE CREEK SNOTEL	5930	6/01/07	0	.0	.0	7.3
POPE RIDGE SNOTEL	3540	6/01/07	0	.0	.0	.0
POTATO HILL SNOTEL	4500	6/01/07	0	.0	2.7	2.7
QUARTZ PEAK SNOTEL	4700	6/01/07	0	.0	.0	.0
RAGGED MTN SNOTEL	4210	6/01/07	0	.0	--	--
RAINY PASS SNOTEL	4780	6/01/07	32	13.9	20.4	24.3
RAINY PASS	4780	5/28/07	42	22.6	22.0	--
REX RIVER SNOTEL	1900	6/01/07	0	.0	.0	6.1
ROCKER PEAK SNOTEL	8000	6/01/07	16	5.5	8.7	11.7
SADDLE MTN SNOTEL	7900	6/01/07	19	5.3	10.8	16.3
SALMON MDWS SNOTEL	4500	6/01/07	0	.0	.0	.0
SASSE RIDGE SNOTEL	4200	6/01/07	0	.0	11.4	5.9
SAVAGE PASS SNOTEL	6170	6/01/07	0	.0	4.2	10.4
SAWMILL RIDGE SNOTEL	4700	6/01/07	0	3.0	--	--
SENTINEL BT SNOTEL	4920	6/01/07	0	.0	.0	--
SHEEP CANYON SNOTEL	4050	6/01/07	16	8.1	18.2	13.7
SHERWIN SNOTEL	3200	6/01/07	---	.0	.0	.0
SILVER STAR MTN CAN.	5600	6/02/07	19	10.0	17.8	18.4
SKALKAHO SNOTEL	7260	6/01/07	0	.0	1.5	14.6
SKOOKUM CREEK SNOTEL	3920	6/01/07	0	.0	.0	1.5
SOURDOUGH GUL SNOTEL	4000	6/01/07	0	.0	.0	--
SPENCER MDW SNOTEL	3400	6/01/07	0	.0	1.8	3.0
SPIRIT LAKE SNOTEL	3100	6/01/07	0	.0	.0	.0
SPRUCE SPGS SNOTEL	5700	6/01/07	0	.0	.0	--
STAHL PEAK SNOTEL	6030	6/01/07	62	31.5	26.4	28.0
STAMPEDE PASS SNOTEL	3860	6/01/07	28	16.7	18.0	18.6
STEVENS PASS SNOTEL	4070	6/01/07	8	3.0	10.3	9.0
STRYKER BASIN	6180	5/31/07	32	15.8	19.8	19.4
SUNSET SNOTEL	5540	6/01/07	---	.0	.0	13.5
SURPRISE LKS SNOTEL	4250	6/01/07	32	15.9	37.0	19.0
SWAMP CREEK SNOTEL	4000	6/01/07	0	.0	.0	.0
THUNDER BASIN SNOTEL	4200	6/01/07	0	6.2	10.7	9.3
THUNDER BASIN	4200	5/28/07	18	10.4	--	--
TINKHAM CREEK SNOTEL	3000	6/01/07	3	.5	6.1	2.9
TOUCHET SNOTEL	5530	6/01/07	0	.0	.0	2.5
TROUGH #2 SNOTEL	5310	6/01/07	0	.0	.0	.0
TROUT CREEK CAN.	5650	5/27/07	0	.0	--	--
TV MOUNTAIN	6800	5/24/07	6	2.0	1.4	6.8
TWELVEMILE SNOTEL	5600	6/01/07	0	.0	.0	.4
TWIN LAKES SNOTEL	6400	6/01/07	7	1.8	18.6	22.3
UPPER WHEELER SNOTEL	4400	6/01/07	0	.0	.0	.0
WARM SPRINGS SNOTEL	7800	6/01/07	39	15.5	12.1	17.0
WATERHOLE SNOTEL	5000	6/01/07	33	15.4	15.5	15.0
WELLS CREEK SNOTEL	4200	6/01/07	20	9.7	9.8	8.9
WHITE PASS ES SNOTEL	4500	6/01/07	0	.0	4.3	5.6
WHITE ROCKS MTN CAN.	7200	5/30/07	6	2.8	6.9	7.4

NRCS Natural Resources Conservation Service

June 1, 2007 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2006 - Current Date)



USDA NRCS
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Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

Washington:
http://www.wa.nrcs.usda.gov/snow

Oregon:
http://www.or.nrcs.usda.gov/snow

Idaho:
http://www.id.nrcs.usda.gov/snow

National Water and Climate Center (NWCC):
http://www.wcc.nrcs.usda.gov

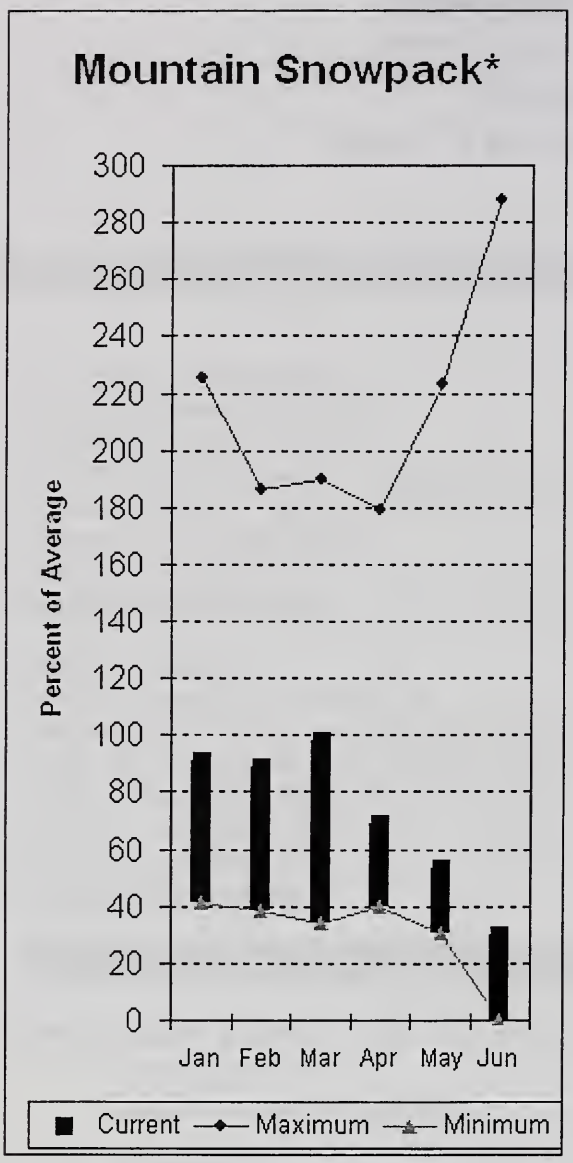
NWCC Anonymous FTP Server:
ftp.wcc.nrcs.usda.gov

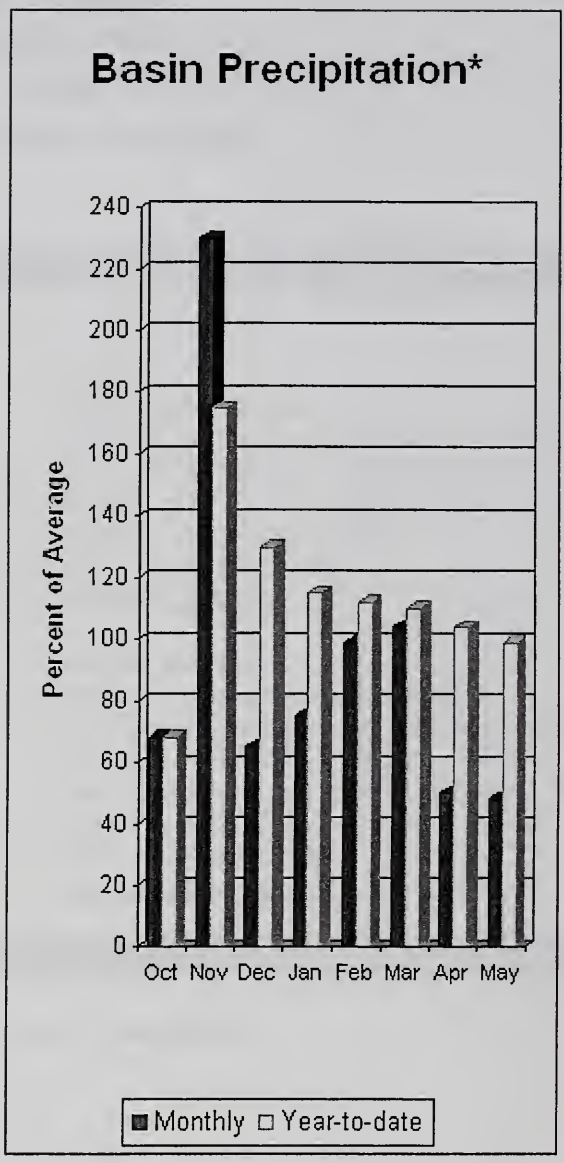
USDA-NRCS Agency Homepages

Washington:
http://www.wa.nrcs.usda.gov

NRCS National:
http://www.nrcs.usda.gov

Spokane River Basin





*Based on selected stations

The June 1 forecasts for summer runoff within the Spokane River Basin are 85% of average near Post Falls and 85% at Long Lake. The Chamokane River near Long Lake forecasted to have 88% of average flows for the May-August period. The forecast is based on a basin snowpack that is 30% of average and precipitation that is 99% of average for the water year. Precipitation for May was near normal at 48% of average. Streamflow on the Spokane River at Long Lake was 65% of average for May. June 1 storage in Coeur d'Alene Lake was 214,000acre feet, 79% of average and 90% of capacity. Snowpack at Quartz Peak SNOTEL site melted out on May 7. Average temperatures in the Spokane basin were 5 degrees above normal for May and near normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

SPOKANE RIVER BASIN
Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SPOKANE near Post Falls (2)	JUN-SEP	169	300	385	50	470	600	775
	JUN-JUL	116	235	320	47	405	525	675
SPOKANE at Long Lake (2)	JUN-JUL	235	370	460	55	550	685	840
	JUN-SEP	385	530	625	59	720	865	1060
CHAMOKANE CREEK near Long Lake	JUL-AUG	2.8	3.0	3.2	91	3.4	3.6	3.5

SPOKANE RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
COEUR D'ALENE	238.5	213.7	209.1	270.4

SPOKANE RIVER BASIN
Watershed Snowpack Analysis - June 1, 2007

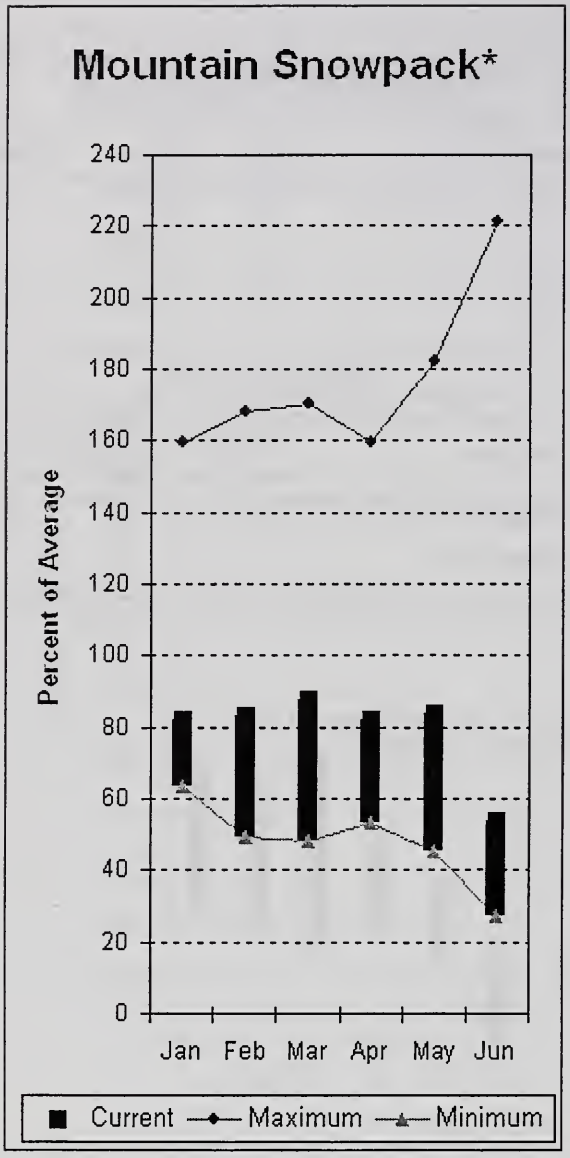
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SPOKANE RIVER	8	54	30
NEWMAN LAKE	1	0	0

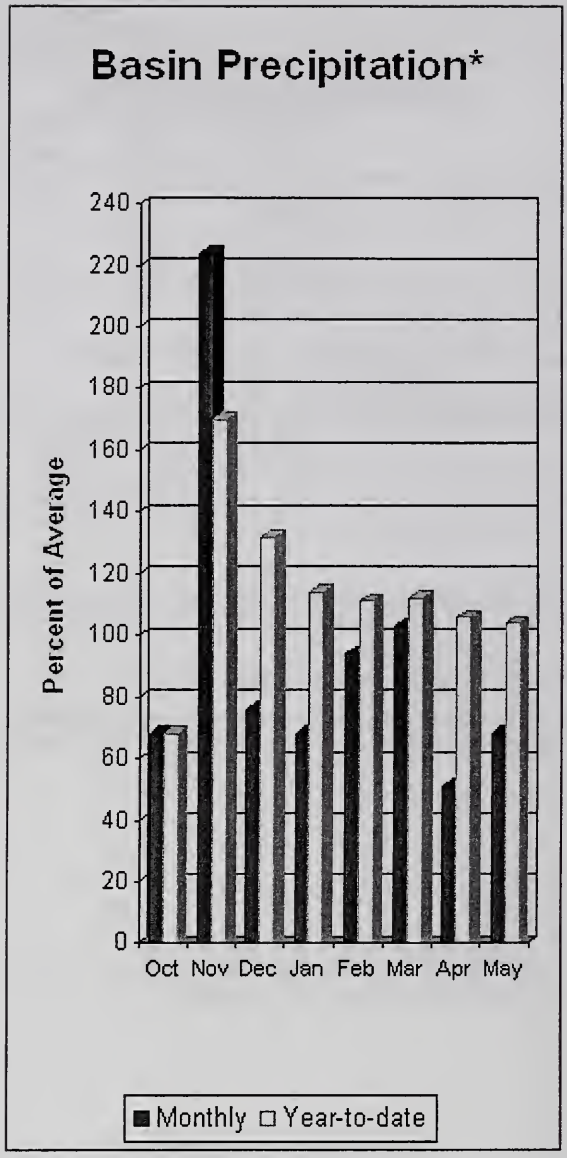
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Colville - Pend Oreille River Basins





*Based on selected stations

The June – September average forecast for the Kettle River streamflow is 97%, Colville at Kettle Falls is 90% and Priest River near the town of Priest River is 96%. May streamflow was 92% of average on the Pend Oreille River, 108% on the Columbia at the International Boundary and 84% on the Kettle River. June 1 snow cover was 54% of average in the Pend Oreille Basin River Basin and 16% in the Kettle River Basin. Snowpack at Bunchgrass Meadows SNOTEL site melted on May 28. Normally Bunchgrass would have 9.7 inches of snow water on June 1. Precipitation during May was 68% of average, dropping the year-to-date precipitation to 104% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 97% of normal. Average temperatures were 4-5 degrees above normal for May and near normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
PEND OREILLE Lake Inflow (2)	JUN-JUL	3070	3820	4330	71	4840	5590	6120
	JUN-SEP	3800	4630	5190	71	5750	6580	7280
PRIEST near Priest River (1,2)	JUN-JUL	127	181	205	71	230	285	290
	JUN-SEP	155	215	245	71	275	335	345
PEND OREILLE bl Box Canyon (2)	JUN-JUL	2780	3740	4390	71	5040	6000	6190
	JUN-SEP	3630	4590	5240	71	5890	6850	7370
COLVILLE at Kettle Falls	JUN-SEP	7.8	18.0	25	52	32	42	48
	JUN-JUL	5.2	7.2	13.1	37	19.0	28	35
KETTLE near Laurier	JUN-SEP	420	540	620	71	700	820	880
	JUN-JUL	400	495	560	72	625	720	780
COLUMBIA at Birchbank (1,2)	JUN-JUL	20300	22400	23400	106	24400	26500	22000
	JUN-SEP	28700	31500	32700	107	33900	36700	30600
COLUMBIA at Grand Coulee Dm (1,2)	JUN-SEP	35100	39000	40700	101	42400	46300	40300
	JUN-JUL	25600	28800	30200	100	31600	34800	30200

COLVILLE - PEND OREILLE RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROOSEVELT		NO REPORT		
PEND OREILLE	1561.3	1299.2	1329.0	1333.1
PRIEST LAKE	119.3	124.0	154.6	138.5

COLVILLE - PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - June 1, 2007

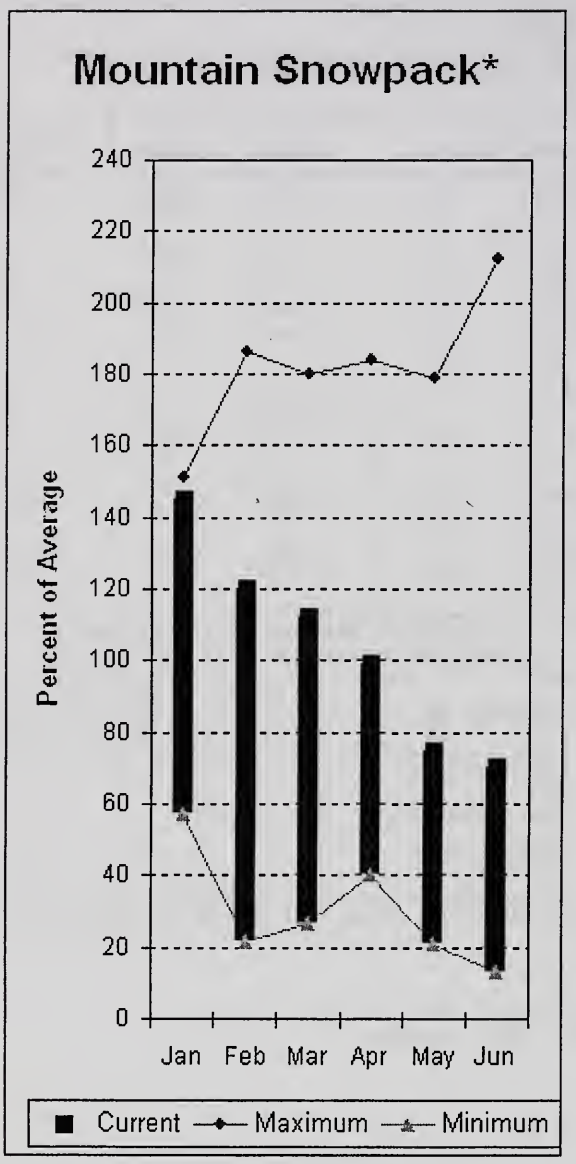
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
COLVILLE RIVER	0	0	0
PEND OREILLE RIVER	8	0	0
KETTLE RIVER	1	30	16

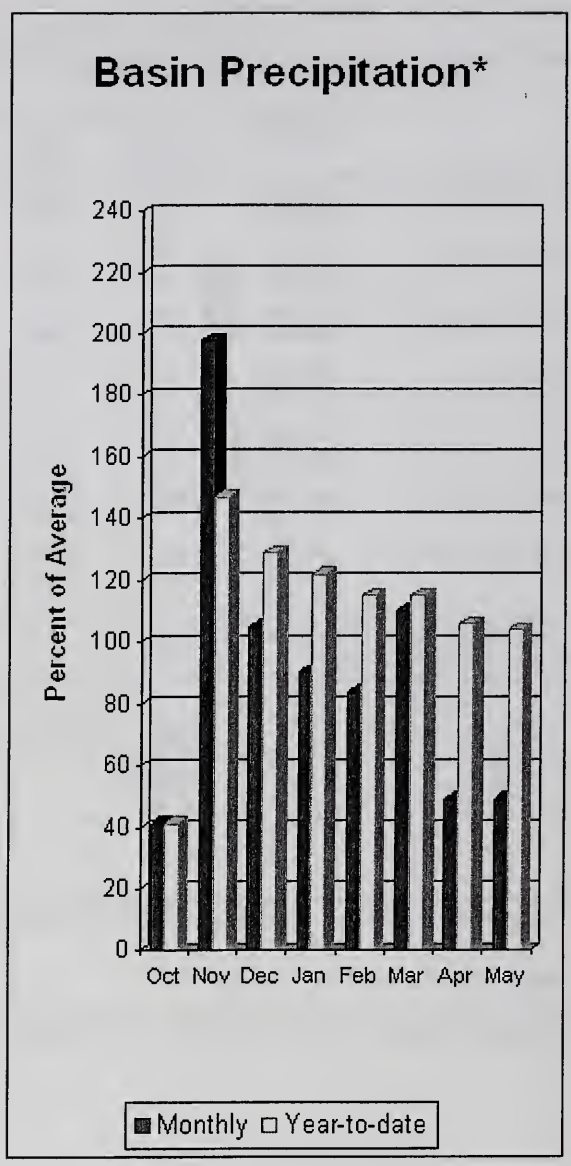
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Okanogan - Methow River Basins





*Based on selected stations

Summer runoff average forecast for the Okanogan River is 95%, Similkameen River is 105%, Methow River is 104% and Salmon Creek is 73%. June 1 snow cover on the Okanogan was 62% of average and the Methow was 79%. Stations in all other basins were melted out by June 1. May precipitation in the Okanogan-Methow was 49% of average, with precipitation for the water year at 104% of average. May streamflow for the Methow River was 122% of average, 104% for the Okanogan River and 108% for the Similkameen. Snow-water at Salmon Meadows SNOTEL melted out on April 27. Combined storage in the Conconully Reservoirs was 23,000-acre feet, which is 98% of capacity and 109% of the June 1 average. Temperatures were 4 degrees above normal for May and near average for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SIMILKAMEEN near Nighthawk (1)	JUN-JUL	558	684	770	105	856	982	735
	JUN-SEP	620	795	875	105	955	1130	835
OKANOGAN near Tonasket (1)	JUN-JUL	500	715	815	95	915	1130	860
	JUN-SEP	640	885	995	95	1110	1350	1050
OKANOGAN at Malott (1)	JUN-JUL	775	825	845	95	865	915	894
	JUN-SEP	960	1010	1030	95	1050	1100	1085
Salmon Creek nr Conconully	JUN-JUL	2.1	4.7	7.1	80	10.0	15.1	8.9
	JUN-SEP	1.8	4.6	7.2	73	10.4	16.1	9.9
TOATS COULEE CREEK nr Loomis	JUN-JUL	7.0	12.0	15.4	101	18.8	24	15.3
	JUN-SEP	8.4	13.1	16.3	96	19.5	24	16.9
Beaver Creek blw SF nr Twisp	JUN-SEP	2.0	3.8	5.0	79	6.2	8.0	6.3
	JUN-JUL	1.6	3.3	4.5	85	5.7	7.4	5.3
METHOW RIVER near Pateros	JUN-SEP	418	512	580	104	653	769	560
	JUN-JUL	366	449	510	104	574	677	490

OKANOGAN - METHOW RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SALMON LAKE	10.5	10.2	9.9	9.7
CONCONULLY RESERVOIR	13.0	12.9	13.2	11.4

OKANOGAN - METHOW RIVER BASINS
Watershed Snowpack Analysis - June 1, 2007

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
OKANOGAN RIVER	8	68	62
OMAK CREEK	1	0	100
SANPOIL RIVER	0	0	0
SIMILKAMEEN RIVER	0	173	0
TOATS COULEE CREEK	0	0	0
CONCONULLY LAKE	1	0	0
METHOW RIVER	3	91	79

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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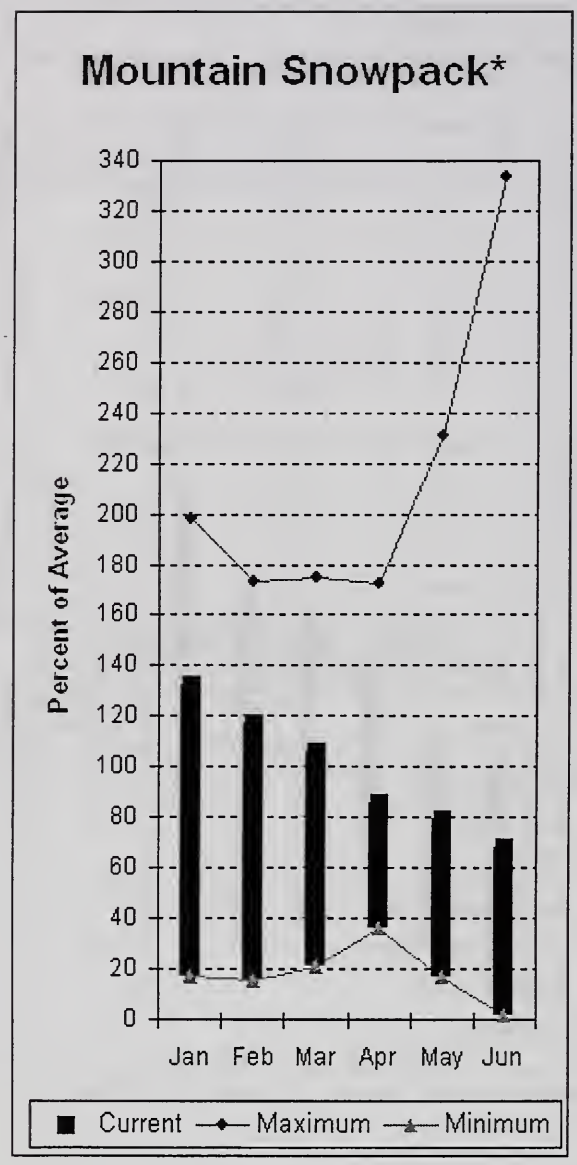
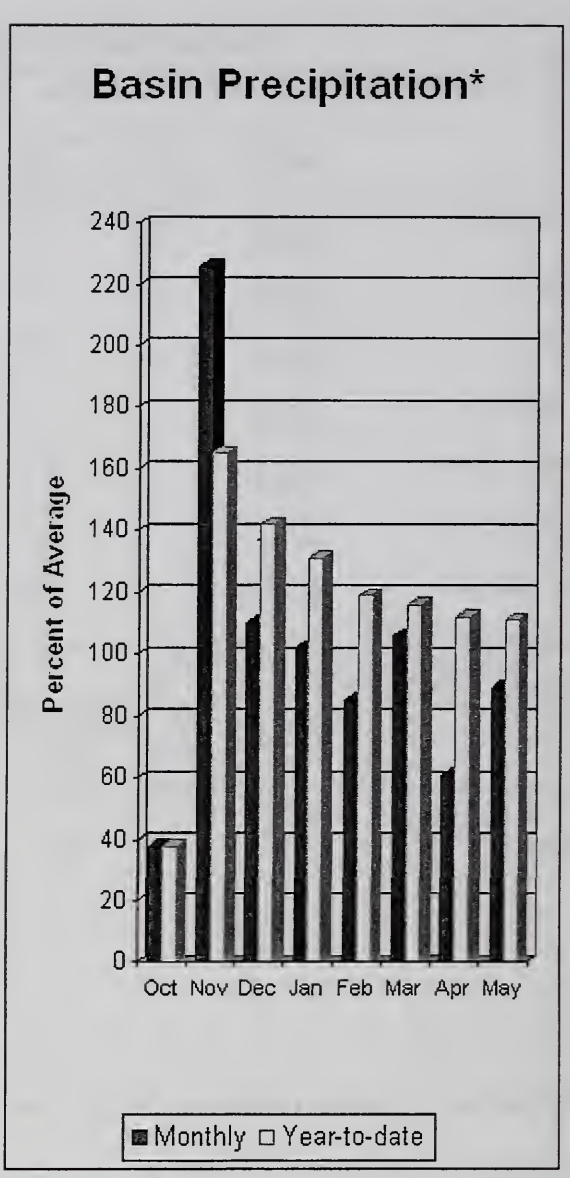
Wenatchee - Chelan River Basins





*Based on selected stations

Precipitation during May was 89% of average in the basin and 111% for the year-to-date. Runoff for Entiat River is forecast to be 99% of average for the summer. The June-September average forecast for Chelan River is 103%, Wenatchee River at Plain is 98% and Stehekin is 104%. Icicle, Stemilt and Squilchuck creeks are all forecasted to have near average flows as well. May average streamflows on the Chelan River were 121% and on the Wenatchee River 103%. June 1 snowpack in the Wenatchee River Basin was 77% of average; the Chelan, 59%. Entiat, Stemilt Creek and Colockum Creek snowpack had all melted prior to June 1. Reservoir storage in Lake Chelan was 516,000-acre feet, 109% of June 1 average and 76% of capacity. Lyman Lake SNOTEL had the most snow water remaining with 48.8 inches of water. This site would normally have 50.8 inches on June 1. Statistically Lyman Lake won't melt out until mid July. Temperatures were 4 degrees above normal for May and near average for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CHELAN RIVER near Chelan	JUN-SEP	613	696	755	103	817	912	730
	JUN-JUL	483	557	610	103	666	752	590
STEHEKIN near STEHEKIN	JUN-SEP	463	517	555	104	595	656	535
	JUN-JUL	343	391	425	104	461	516	410
ENTIAT RIVER nr Ardenvoir	JUN-SEP	120	136	147	99	159	176	149
	JUN-JUL	104	117	127	100	137	153	127
WENATCHEE at Plain	JUN-JUL	417	502	565	99	631	735	570
	JUN-SEP	502	602	675	98	752	873	690
WENATCHEE R. at Peshastin	JUN-JUL	575	685	760	97	840	970	785
	JUN-SEP	695	820	910	97	1000	1150	935
STEMILT CK nr Wenatchee (miner's in)	MAY-SEP	90	110	123	89	136	156	138
ICICLE CREEK near Leavenworth	JUN-SEP	134	157	174	89	191	219	195
	JUN-JUL	113	133	148	89	164	188	166
COLUMBIA R. bl Rock Island Dam (2)	JUN-SEP	40000	43300	45600	105	47900	51200	43500
	JUN-JUL	28900	32200	34500	105	36800	40100	33000

WENATCHEE - CHELAN RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CHELAN LAKE	676.1	515.5	472.5	473.0

WENATCHEE - CHELAN RIVER BASINS
Watershed Snowpack Analysis - June 1, 2007

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CHELAN LAKE BASIN	4	66	59
ENTIAT RIVER	1	0	0
WENATCHEE RIVER	6	75	77
STEMILT CREEK	1	0	0
COLOCKUM CREEK	1	0	0

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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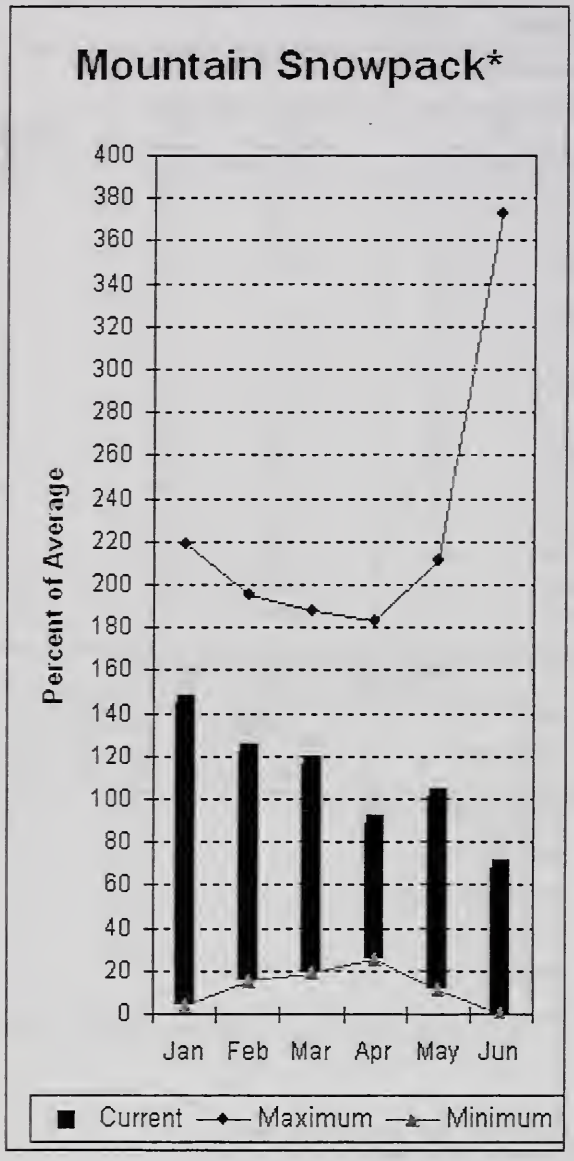
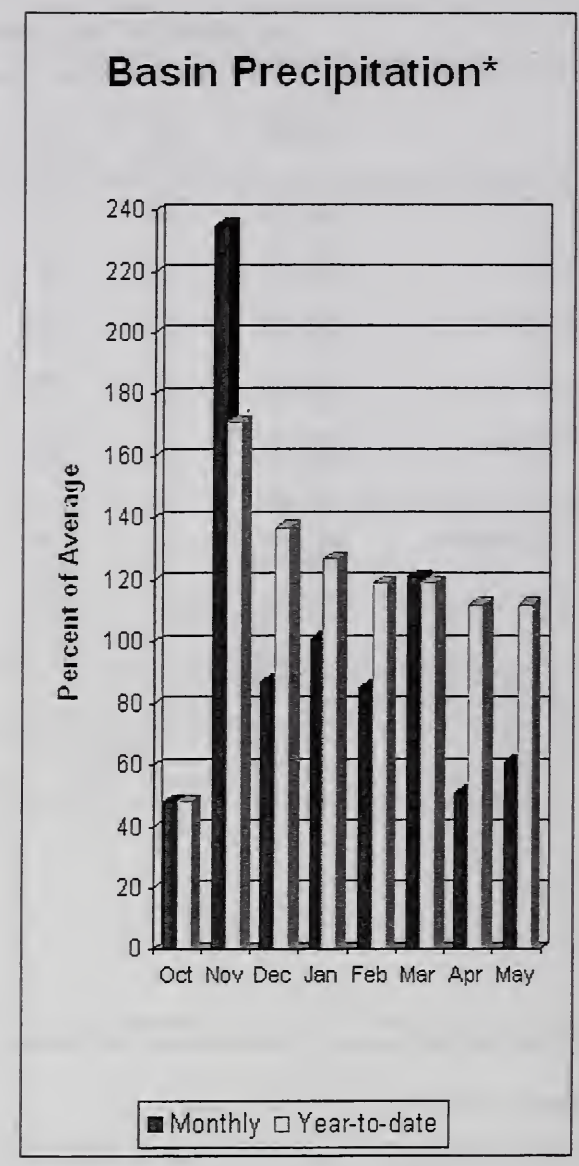
Upper Yakima River Basin





*Based on selected stations

June 1 reservoir storage for the Upper Yakima reservoirs was 831,000-acre feet, 114% of average. Forecasts for the Yakima River at Cle Elum are 90% of average and the Teanaway River near Cle Elum is at 78%. Lake inflows are all forecasted to be near to slightly below average this summer as well. May streamflows within the basin were Yakima near Cle Elum at 90% and Cle Elum River near Roslyn at 99%. June 1 snowpack was 68% based upon 6 SNOTEL readings within the Upper Yakima Basin. Precipitation was 61% of average for May and 112% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
KEECHELUS LAKE INFLOW	JUN-JUL	31	38	44	92	50	60	48
	JUN-SEP	39	48	55	93	62	74	59
KACHESS LAKE INFLOW	JUN-JUL	29	35	40	93	45	53	43
	JUN-SEP	35	42	47	92	53	61	51
CLE ELUM LAKE INFLOW	JUN-JUL	108	144	172	89	202	251	193
	JUN-SEP	132	174	205	89	239	294	230
YAKIMA at Cle Elum	JUN-JUL	232	271	300	90	330	377	335
	JUN-SEP	250	321	375	90	433	525	415
TEANAWAY near Cle Elum	JUN-JUL	12.8	21	27	73	34	46	37
	JUN-SEP	15.7	24	31	78	39	52	40

UPPER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
KEECHELUS	157.8	157.4	142.2	140.5
KACHESS	239.0	238.7	152.3	207.6
CLE ELUM	436.9	434.9	472.4	379.3

UPPER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - June 1, 2007

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
UPPER YAKIMA RIVER	6	64	68

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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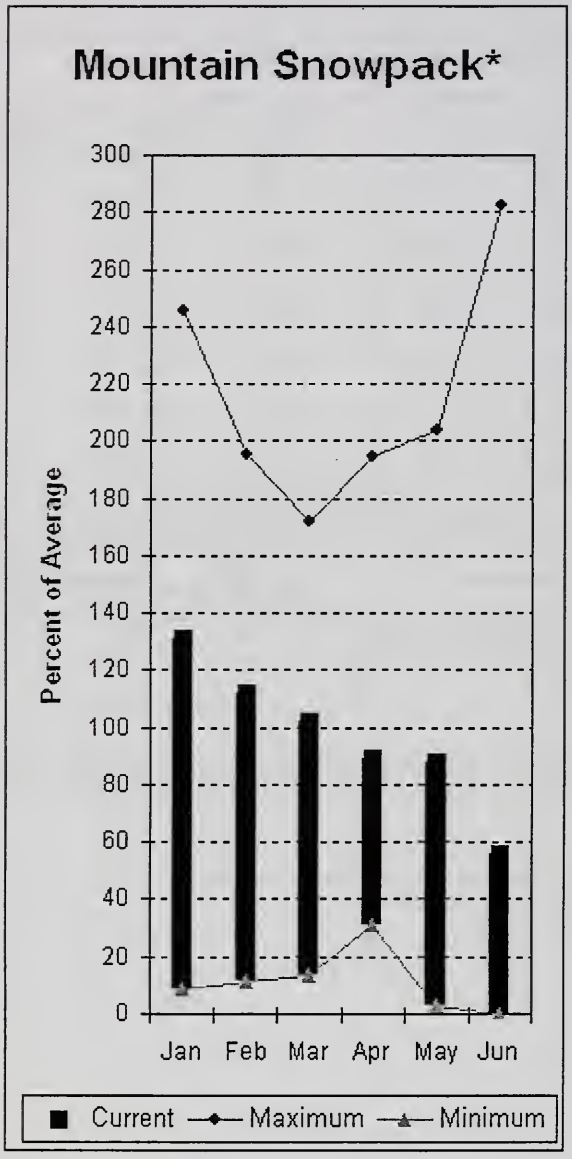
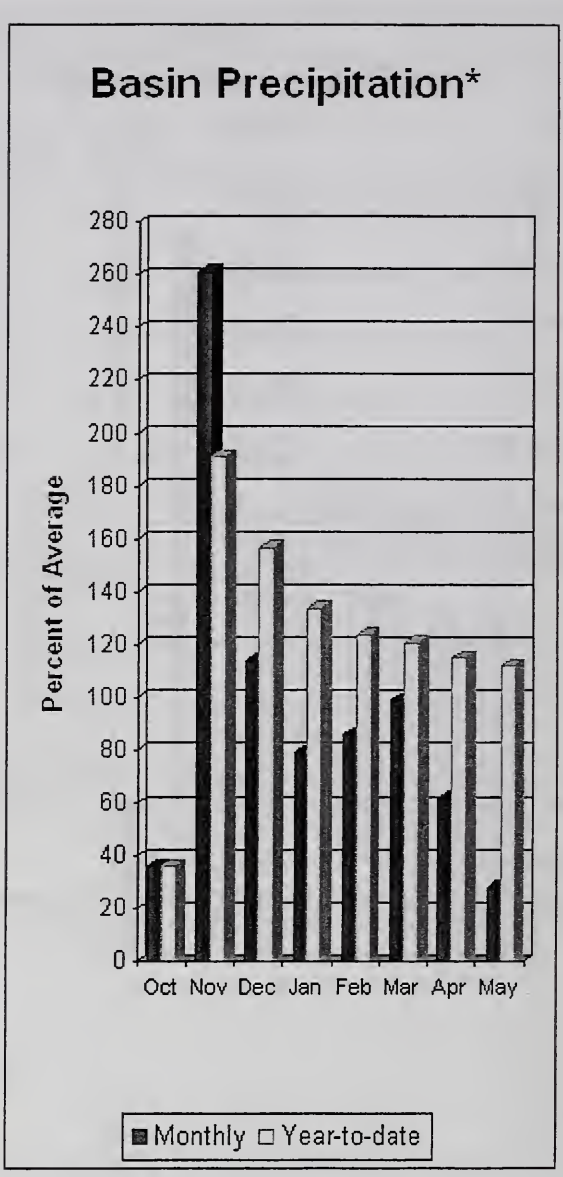
Lower Yakima River Basin





*Based on selected stations

May average streamflows within the basin were: Yakima River near Parker, 96% and the Naches River near Naches, 99%. June 1 reservoir storage for Bumping and Rimrock reservoirs was 231,000-acre feet, 113% of average. Forecast average flows for Yakima River near Parker are 86%; Naches River near Naches, 97%; Ahtanum Creek, 61%; and Klickitat River near Glenwood, 85%. June 1 snowpack was 56% based upon 6 SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported all snow melted on May 27. Precipitation was only 28% of average for May and 112% for water year-to-date. Temperatures were 6 degrees above normal for May and near average for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they June differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BUMPING LAKE INFLOW	JUN-SEP	35	53	67	92	83	109	73
	JUN-JUL	28	44	56	92	70	93	61
RIMROCK LAKE INFLOW	JUN-SEP	86	109	126	89	144	174	141
	JUN-JUL	59	77	91	89	106	130	102
NACHES near Naches	JUN-SEP	254	317	365	97	416	496	375
	JUN-JUL	210	264	305	97	349	418	315
AHTANUM CREEK at Union Gap	JUN-SEP	5.2	6.7	7.8	61	9.0	10.9	12.8
	JUN-JUL	2.7	4.6	6.1	57	7.9	10.9	10.8
YAKIMA near Parker	JUN-SEP	540	680	775	86	870	1010	900
	JUN-JUL	415	530	610	86	690	805	710
KLICKITAT near Glenwood	JUN-JUN	27	33	37	84	41	47	44
	JUN-SEP	49	59	66	85	73	83	78

LOWER YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BUMPING LAKE	33.7	33.8	32.8	30.4
RIMROCK	198.0	197.6	196.3	173.5

LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - June 1, 2007

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

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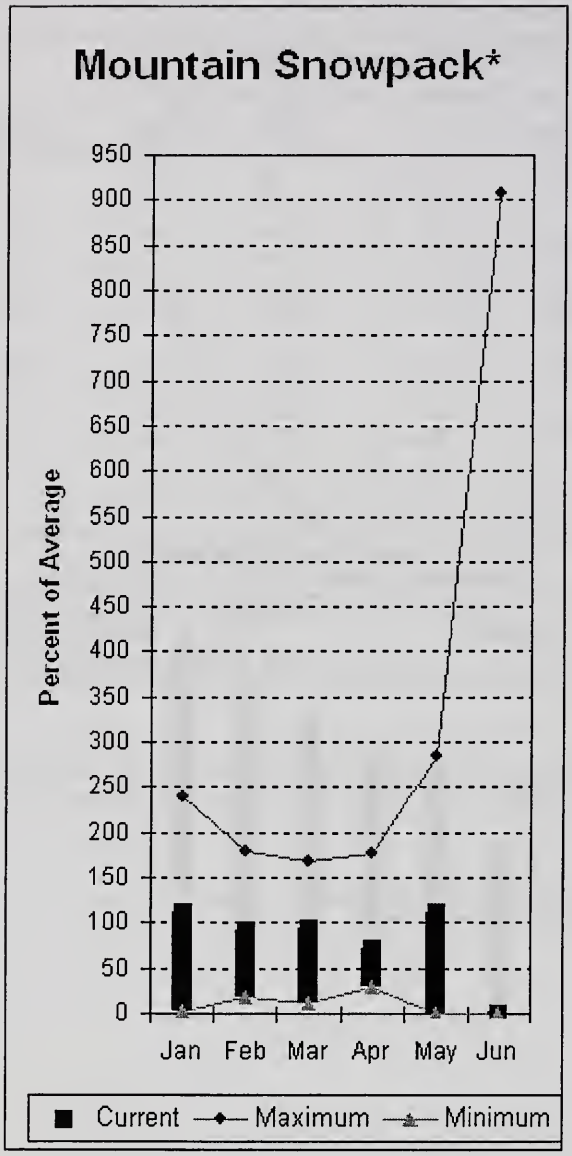
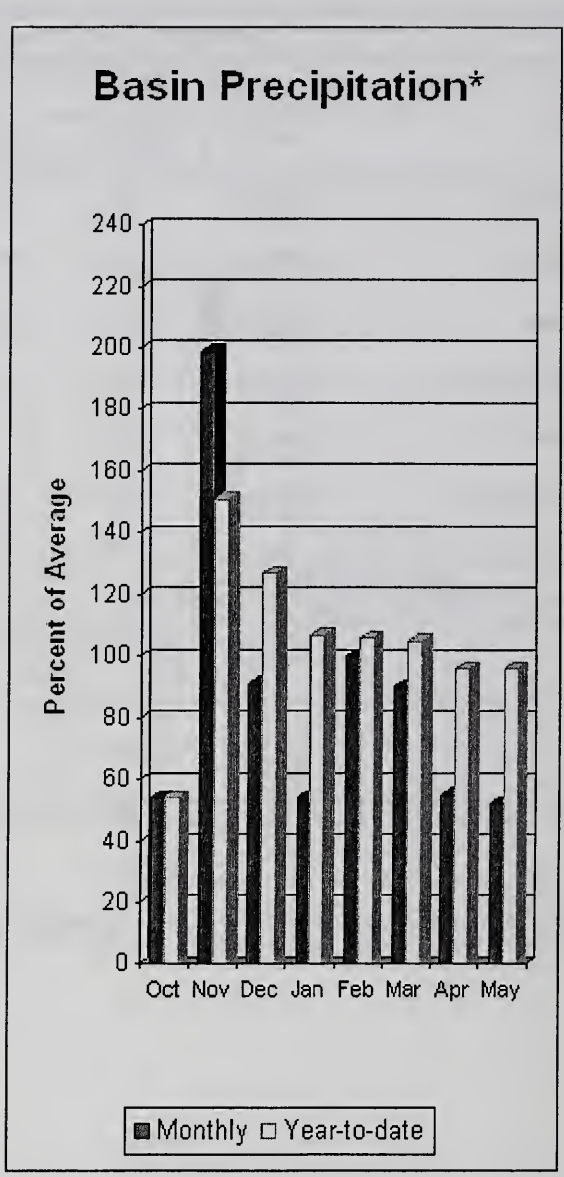
Walla Walla River Basin





*Based on selected stations

May precipitation was 52% of average, maintaining the year-to-date precipitation at 96% of average. Snowpack in the basin was melted out by June 1. Streamflow forecasts are 87% of average for Mill Creek at Kooskooskie and 88% for the SF Walla Walla near Milton-Freewater. May streamflow was 45% of average for the Walla Walla River. Average temperatures were 6 degrees above normal for May and near normal for the water year. Watch for a new SNOTEL site named Milkshakes to be installed in Mid-July. This site is sponsored by the City of Walla Walla to provide real-time snow and precipitation data collection in the headwaters of Mill Creek.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF WALLA WALLA near Milton-Freewater	JUN-JUL	13.1	15.0	16.4	85	17.8	20	19.2
	JUN-SEP	25	27	29	88	31	34	33
MILL CREEK at Kooskooskie	MAY-JUL	8.9	10.9	12.4	84	14.0	16.5	14.7
	MAY-SEP	12.0	14.3	16.0	87	17.8	21	18.4

WALLA WALLA RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - June 1, 2007

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WALLA WALLA RIVER	2	0	0

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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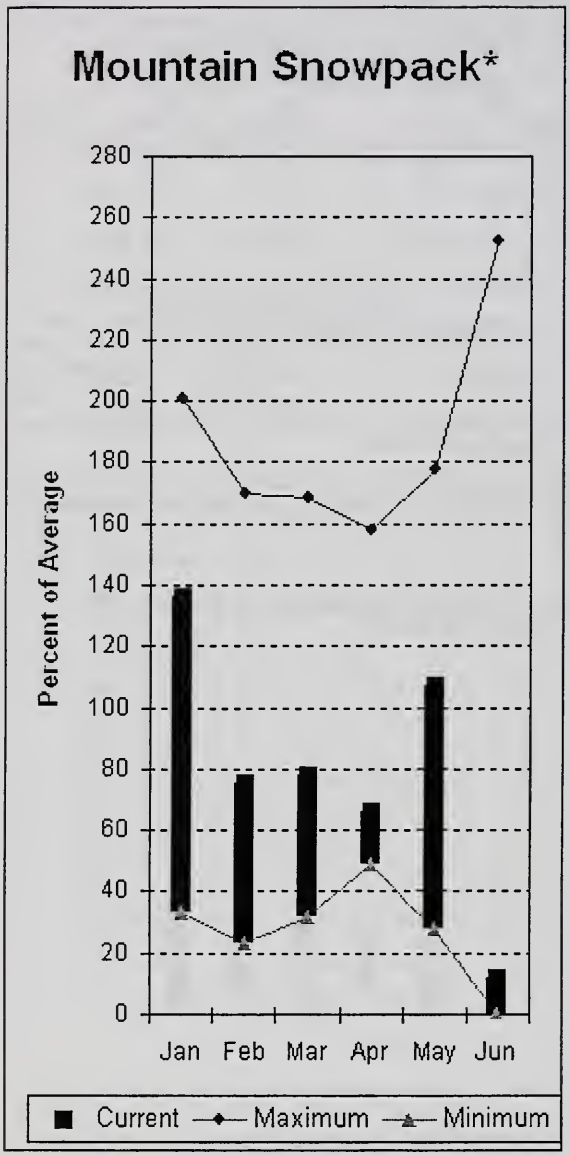
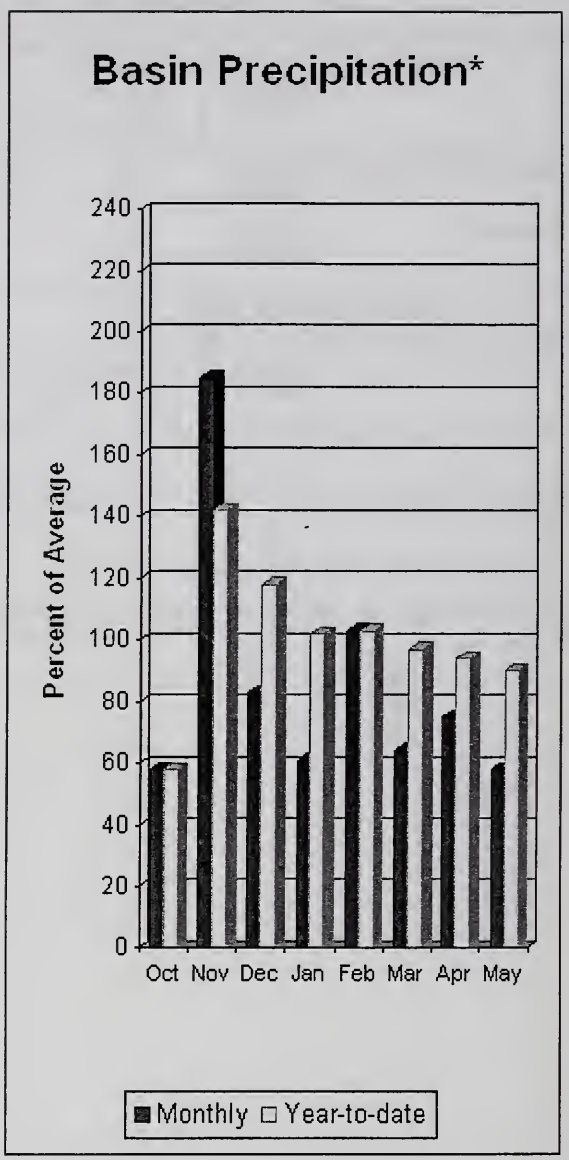
Lower Snake River Basin





*Based on selected stations

The June - September forecast is for 44% for Clearwater River at Spalding. The Grande Ronde river at Troy can expect summer flows to be about 43% of normal. May precipitation was 58% of average, bringing the year-to-date precipitation to 90% of average. June 1 snowpack readings averaged only 12% of normal. May streamflow was 72% of average for Snake River below Lower Granite Dam and 56% for Grande Ronde River near Troy. Average temperatures were 6-7 degrees above normal for May and 1-2 degrees above normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GRANDE RONDE at Troy (1)	JUN-JUL	89	179	220	47	260	350	470
	JUN-SEP	112	220	270	48	320	430	565
CLEARWATER at Spalding (1,2)	JUN-JUL	570	1240	1540	52	1840	2510	2960
	JUN-SEP	655	1420	1760	52	2100	2860	3370
SNAKE blw Lower Granite Dam (1,2)	JUN-JUL	2730	3840	4350	47	4860	5970	9340
	JUN-SEP	3930	5340	5980	50	6620	8030	11900

LOWER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3468.0	3308.2	3133.5	3040.7

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - June 1, 2007

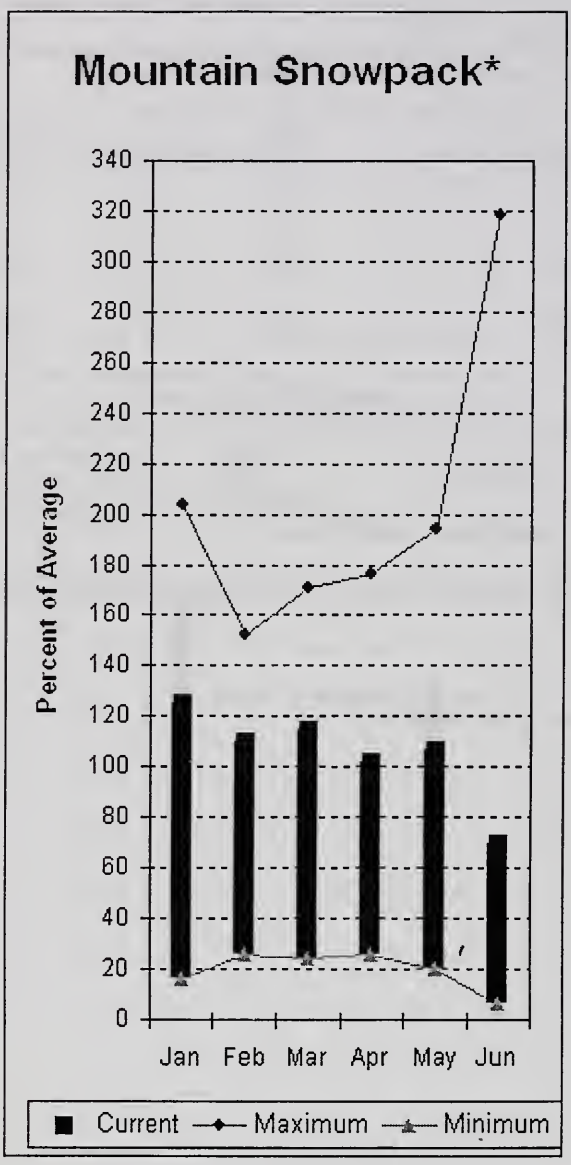
Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
LOWER SNAKE, GRANDE RONDE	9	29	12

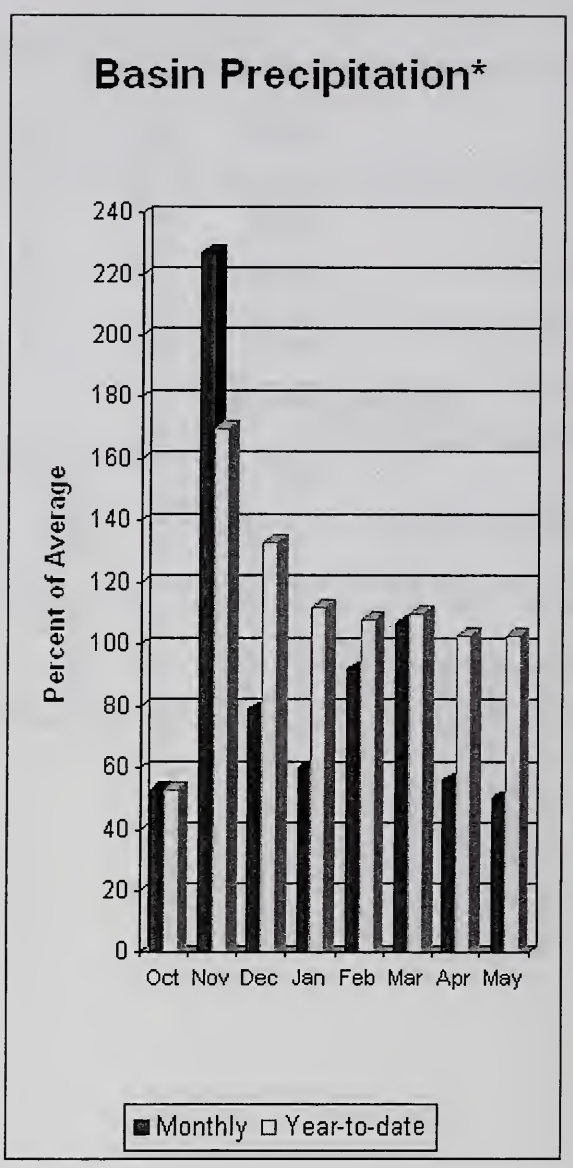
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Cowlitz - Lewis River Basins





*Based on selected stations

Forecasts for June – September streamflows within the basin are Lewis River at Ariel, 91% and Cowlitz River at Castle Rock, 87% of average. The Columbia at The Dalles is forecasted to have 92% of average flows this summer. May average streamflow for Cowlitz River was 63% and 63% for Lewis River. The Columbia River at The Dalles was 89% of average. May precipitation was 50% of average and the water-year average was 103%. June 1 snow cover for Cowlitz River was 75%, and Lewis River was 65% of average. Average temperatures were 4 degrees above normal during May and near normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LEWIS at Ariel (2)	JUN-JUL	229	271	300	89	329	371	338
	JUN-SEP	354	405	440	91	475	526	483
COWLITZ R. bl Mayfield Dam (2)	JUN-SEP	60	524	840	90	1156	1620	938
COWLITZ R. at Castle Rock (2)	JUN-SEP	93	687	1090	87	1493	2087	1259
KLICKITAT near Glenwood	JUN-JUN	27	33	37	84	41	47	44
	JUN-SEP	49	59	66	85	73	83	78
COLUMBIA R. at The Dalles (2)	JUN-SEP	38300	45200	49800	86	54400	61300	57800
	JUN-JUL	27600	33300	37200	85	41100	46800	43800

COWLITZ - LEWIS RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MOSSYROCK	0.0	1373.6	1482.2	---
SWIFT	0.0	749.8	750.5	---
YALE	0.0	390.3	397.9	---
MERWIN	0.0	404.8	418.1	---

COWLITZ - LEWIS RIVER BASINS
Watershed Snowpack Analysis - June 1, 2007

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
LEWIS RIVER	5	36	65
COWLITZ RIVER	6	68	75

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
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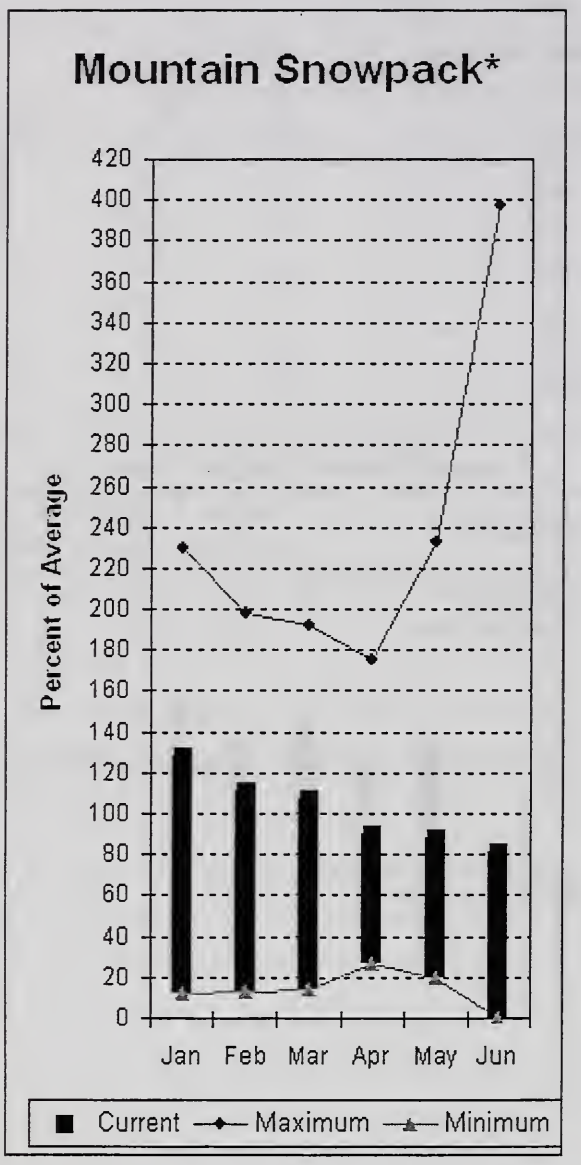
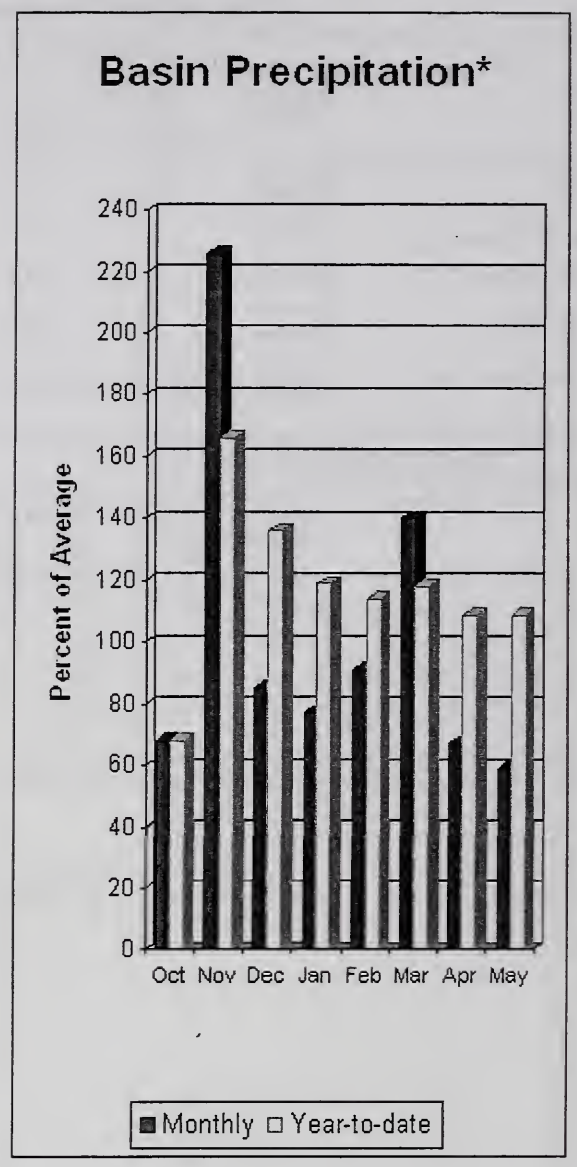
White - Green River Basins





*Based on selected stations

Summer runoff is forecast to be 80% of normal for the Green River below Howard Hanson Dam and 91% for the White River near Buckley. June 1 snowpack was 80% of average in the White River, 79% in the Puyallup River and 83% at Stampede Pass. Water content on June 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 24.8 inches. This site has a June 1 average of 23.1 inches. May precipitation was 59% of average, bringing the water year-to-date to 109% of average for the basins. Average temperatures in the area were 4 degrees above normal for May and near normal for the water-year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WHITE near Buckley (1,2)	JUN-JUL	146	180	195	89	210	244	220
	JUN-SEP	222	265	285	91	305	348	313
GREEN R below Howard Hansen (1,2)	JUN-JUL	34	54	63	78	72	92	81
	JUN-SEP	51	75	86	80	97	121	108

WHITE - GREEN - PUYALLUP RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WHITE - GREEN - PUYALLUP RIVER BASINS
Watershed Snowpack Analysis - June 1, 2007

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WHITE RIVER	2	65	80
GREEN RIVER	2	93	83
PUYALLUP RIVER	3	65	79

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

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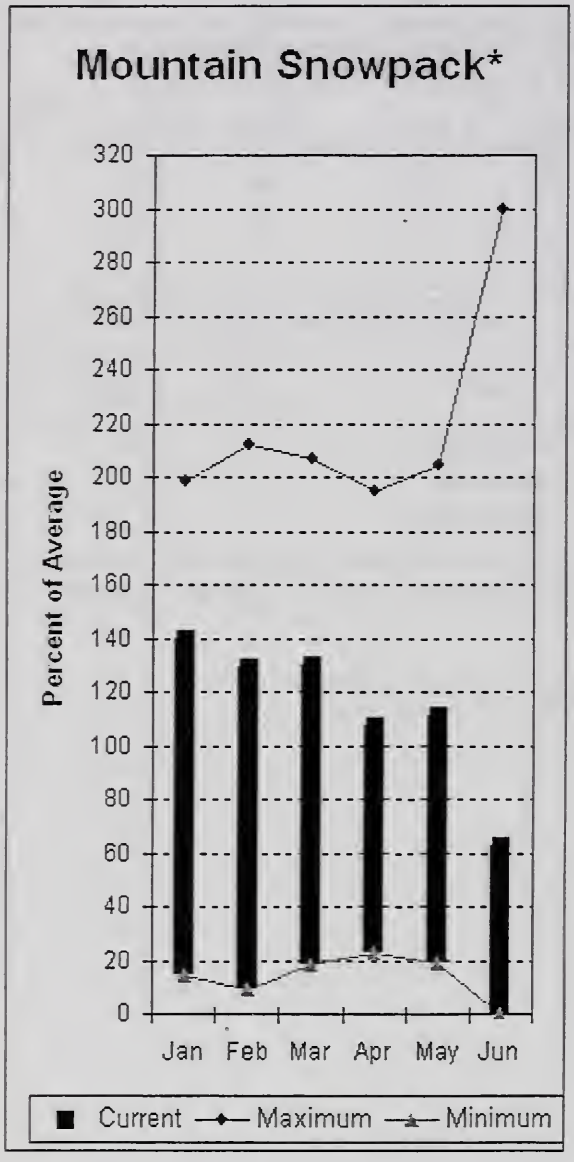
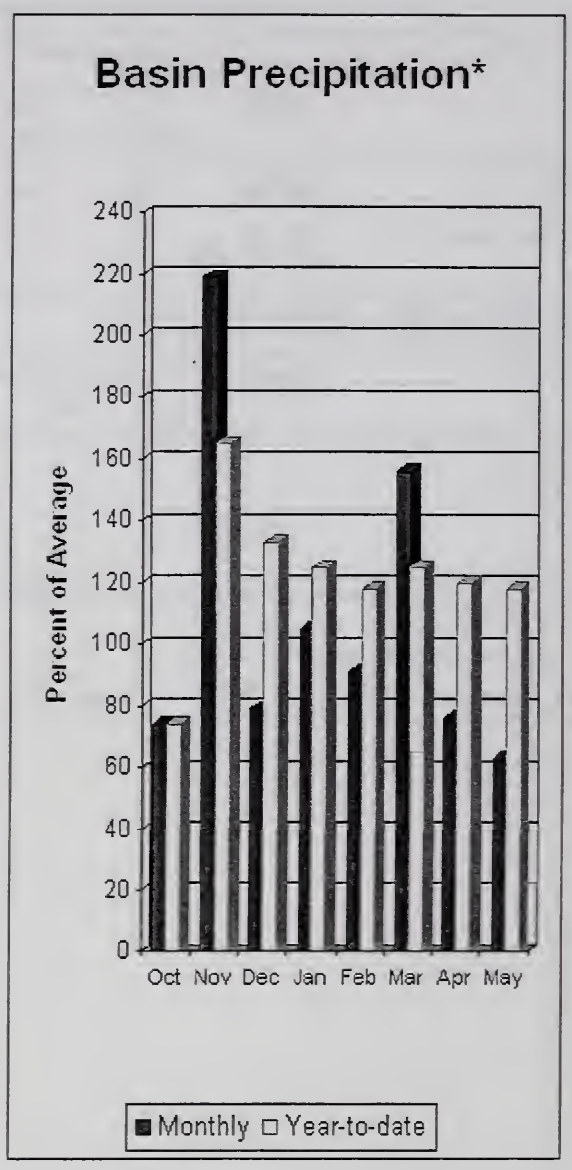
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Central Puget Sound River Basins





*Based on selected stations

Forecast for spring and summer flows are: 85% for Cedar River near Cedar Falls; 83% for Rex River; 86% for South Fork of the Tolt River; and 83% for Cedar River at Cedar Falls. Basin-wide precipitation for May was 63% of average, bringing water-year-to-date to 118% of average. June 1 average snow cover in Cedar River Basin was 5%, Tolt River Basin was 85%, Snoqualmie River Basin was 86%, and Skykomish River Basin was 77%. Olallie Meadows SNOTEL site, at 3960 feet, had 27 inches of water content. Average June 1 water content is 31.8 inches at Olallie Meadows. Temperatures were 4 degrees above average for May and 1-2 degrees above normal for the water-year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CEDAR near Cedar Falls	JUN-JUL	11.2	17.6	22	82	26	33	27
	JUN-SEP	15.8	24	29	85	34	42	34
REX near Cedar Falls	JUN-JUL	1.7	4.6	6.6	81	8.6	11.5	8.2
	JUN-SEP	3.0	6.6	9.0	83	11.4	15.0	10.8
CEDAR RIVER at Cedar Falls	JUN-JUL	7.1	11.8	15.0	82	18.2	23	18.2
	JUN-SEP	9.6	12.5	14.5	83	16.5	19.4	17.5
SOUTH FORK TOLT near Index	JUN-JUL	3.3	4.3	5.0	82	5.7	6.7	6.1
	JUN-SEP	5.3	6.4	7.1	86	7.8	8.9	8.3

CENTRAL PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

CENTRAL PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - June 1, 2007

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CEDAR RIVER	4	8	5
TOLT RIVER	2	93	106
SNOQUALMIE RIVER	4	89	94
SKYKOMISH RIVER	2	79	94

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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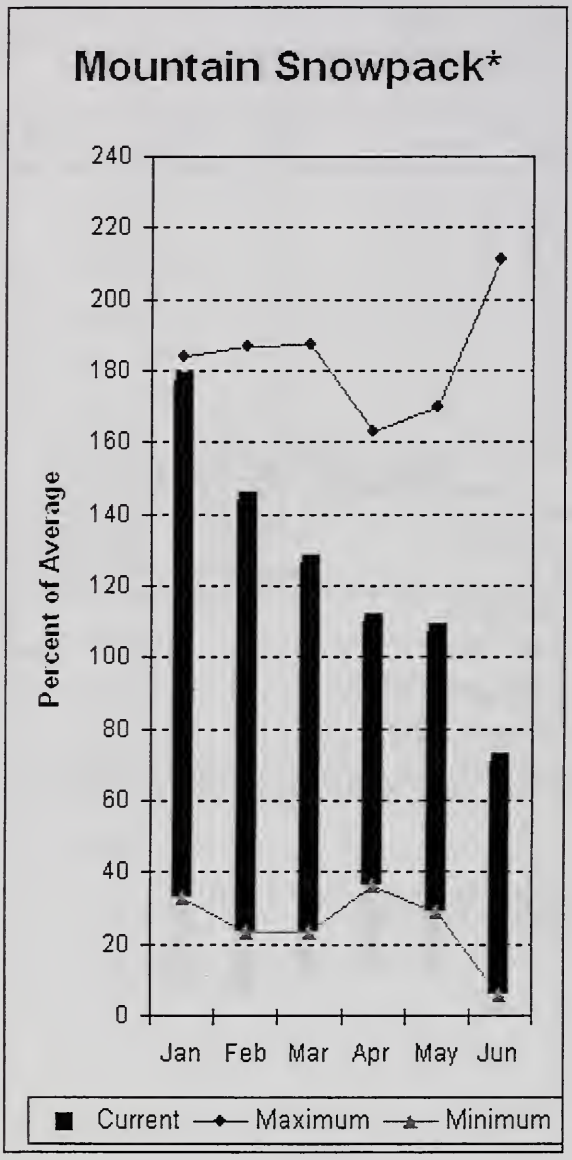
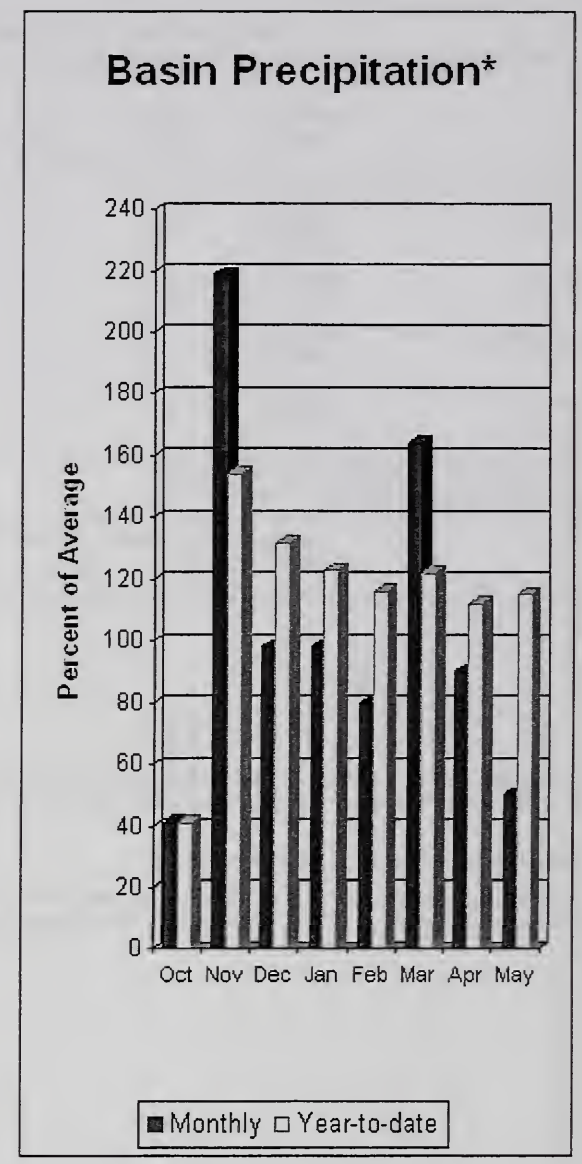
North Puget Sound River Basins





*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 99% of average for the spring and summer period. May streamflow in Skagit River was 104% of average. Other forecast points included Baker River at 98% and Thunder Creek at 100% of average. Basin-wide precipitation for May was 50% of average, bringing water-year-to-date to 115% of average. June 1 average snow cover in Skagit River Basin was 89%, and Nooksack River Basin was 34%. Snowpack data was not available for the Baker River Basin on June 1. Rainy Pass SNOTEL, at 4,780 feet, had 13.9 inches of water content. Average June 1 water content is 24.3 inches at Rainy Pass. June 1 Skagit River reservoir storage was 116% of average and 87% of capacity. Average temperatures for the basin were 2 degrees above normal for the month and near average for the water year. North Cascades Highway (SR20) opened on April 27th this year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
THUNDER CREEK near Newhalem	JUN-JUL	136	149	158	100	167	180	158
	JUN-SEP	228	245	257	100	269	286	257
SKAGIT at Newhalem (2)	JUN-JUL	872	966	1030	98	1094	1188	1054
	JUN-SEP	1213	1319	1390	99	1461	1567	1407
BAKER RIVER near Concrete	JUN-JUL	354	411	450	97	489	546	465
	JUN-SEP	558	628	675	98	722	792	687

NORTH PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROSS	1404.1	1215.5	967.0	1031.4
DIABLO RESERVOIR	90.6	86.9	86.6	86.9

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - June 1, 2007

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SKAGIT RIVER	5	102	89
BAKER RIVER	0	0	0
NOOKSACK RIVER	2	101	34

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

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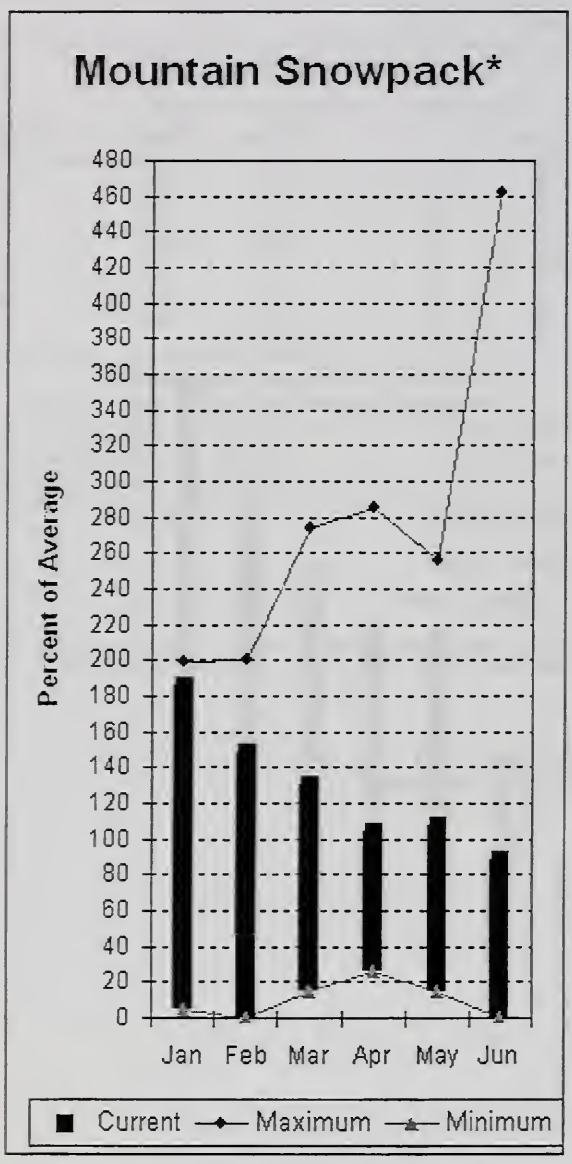
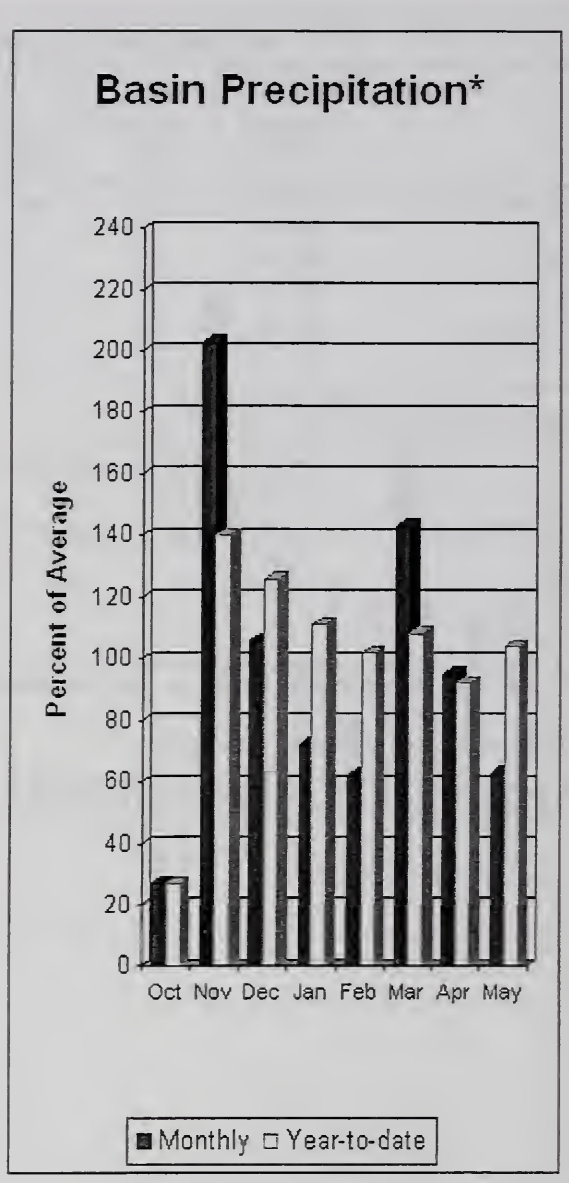
Olympic Peninsula River Basins





*Based on selected stations

Forecasted average runoff for streamflow for Dungeness River is 91% and Elwha River is 92%. May runoff in the Dungeness River was 98% of normal. Big Quilcene and Wynoochee rivers should expect near average runoff this summer also. May precipitation was 63% of average. Precipitation has accumulated at 104% of average for the water year. May precipitation at Quillayute was 3.04 inches. The thirty-year average for May is 5.51 inches. Olympic Peninsula snowpack averaged 88% of normal on June 1. Temperatures were near average on the west side but 3 degrees above average on the east side for May and near average for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - June 1, 2007

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
DUNGENESS near Sequim	JUN-SEP	78	85	90	91	95	102	99
	JUN-JUL	56	61	64	90	67	72	71
ELWHA near Port Angeles	JUN-SEP	245	266	280	92	294	315	306
	JUN-JUL	173	189	200	90	211	227	222

OLYMPIC PENINSULA RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - June 1, 2007

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
OLYMPIC PENINSULA	3	130	88

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

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(2) - The value is natural volume - actual volume may be affected by upstream water management.

GLACIER PAGE 2007

North Cascades National Park Glacier Monitoring Program

The National Park Service began monitoring glaciers in North Cascades National Park in 1993 and Mount Rainier glaciers in 2002 (see the Mount Rainier Glacier Page). Goals for this program and additional data can be found at North Cascades National Park home page at http://www.nps.gov/noca/naturescience/glacial-mass-balance1.htm or contact Jon_Riedel@nps.gov or Jeanna_Wenger@nps.gov.

The four glaciers monitored are located at the headwaters of four watersheds, each with large hydroelectric dams (Figure 1). The glaciers represent a range in elevation from 8800 to 5600 feet, and a range in climatic conditions from maritime to continental. Methods include three visits annually to each glacier to measure winter accumulation and summer melt. Measurements are taken at a series of points down the centerline of the glacier (Table 1), and then integrated across the entire glacier surface to determine mass balance for the entire glacier. Figure 2 shows 2006 was the forth consecutive year to have a negative net balance.

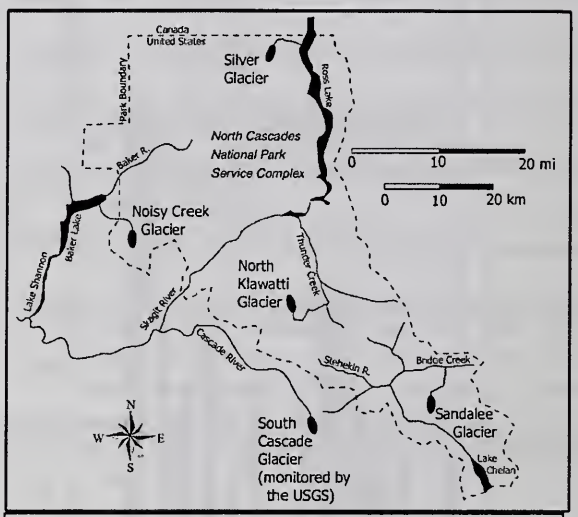

Figure 1. Glaciers monitored in North Cascades N.P.S. Complex.

Table 1		Average	2007	2007
Glacier:	Elev. (feet)	Accumulation (inches W.E.)	Accumulation (inches W.E.)	Percent of Average
Noisy	**Entire Glacier**	**120**	**129**	**108**
Creek	6061	128	136	106
Density =	6035	133	159	120
0.46	5904	116	127	109
@6198'	5756	111	112	101
4/30/2007	5655	111	117	105
Silver	**Entire Glacier**	**92**	**86**	**94**
Density =	8420	111	82	74
0.50	8069	95	77	81
no direct	7606	114	98	86
measurement	7141	63	80	127
North	**Entire Glacier**	**113**	**116**	**103**
Klawatti	7665	115	106	92
Density =	7301	118	129	109
0.50	6901	119	133	112
no direct	6396	102	112	109
measurement	6094	91	91	100
Sandalee	**Entire Glacier**	**116**	**116**	**100**
Density =	7360	109	112	102
0.44	7124	118	108	92
@6490'	6881	112	128	115
4/23/2007	6626	126	123	97

Provisional Data

Table 1 presents this spring's provisional winter accumulation data, along with average values and percent of the 14-year average. The 2007 snow depths were measured between April 23 and May 14 on the four glaciers. The provisional data show 2007 as an average snow year. Ice and firn layers within the snowpack made probing difficult on the upper Silver Glacier. These data are tentative and will be revised after a July visit. Snow densities at Noisy and Sandalee glaciers are averages of samples from the wall of snow pits. North Klawatti and Silver glaciers use an assumed density of 0.5 because no direct measurements were taken. Densities are in fraction of water density.

The 2006 estimates of glacial contribution to runoff for four watersheds are based on the mass balance measurements and GIS analyses to determine glacier area within 165 ft (50-meter) elevation bands (Table 2). Glaciers reduce the variation of flow in these watersheds by providing melt water from firn and ice during summer drought in dry/warm years and by storing water in excess snowpack during wet/cool years. Glacial contribution to stream flow in these watersheds varies by as much as 100% annually. Magnitude of glacial contribution to streamflow is large, but varies by the amount of glacial cover in each watershed. Thunder Creek is 13% glacierized; Baker River, 3%; Stehekin River, 6%; and Ross Lake, 0.9% (Post and others, 1971; Granshaw, 2002).

The glacierized area of a watershed primarily dictates the glacier contribution to runoff. However, the relative importance of glacial contribution to streamflow also generally increases from west to east. For example, glaciers annually contribute a higher percentage of meltwater to streamflow in the Stehekin watershed than in the Baker, despite the fact that the Baker is more highly glacierized. This is due to lower snowfall east of the hydrologic crest of the North Cascades.

Table 2	May-September Runoff (thousands acre-feet)				Percent Glacial Runoff to Total Summer Runoff		
	2006	mean	min	max	2006	min	max
Noisy Creek Glacier	1.5	1.5	1.1	1.9			
Baker River Watershed	**74.0**	**70.1**	**50.1**	**87.2**	**8.7**	**5.6**	**14.6**
North Klawatti Glacier	4.1	4.0	2.8	4.8			
Thunder Creek Watershed	**107.5**	**96.9**	**71.8**	**118.8**	**35.5**	**20.7**	**47.7**
Sandalee Glacier	0.5	0.5	0.4	0.7			
Stehekin River Watershed	**78.6**	**71.0**	**51.6**	**88.1**	**9.2**	**5.4**	**22.9**
Silver Glacier	1.1	1.0	0.7	1.3			
Ross Lake Watershed	**71.3**	**65.0**	**47.4**	**80.5**	**5.8**	**2.5**	**13.5**

Provisional Data

Table 2. Glacial contribution to summer stream flow (May 1 to Sept. 30) for four watersheds. Runoff units are thousands of acre-feet. Data from 1993-2006 except the Sandalee Glacier and Stehekin River Watershed (1995-2006).

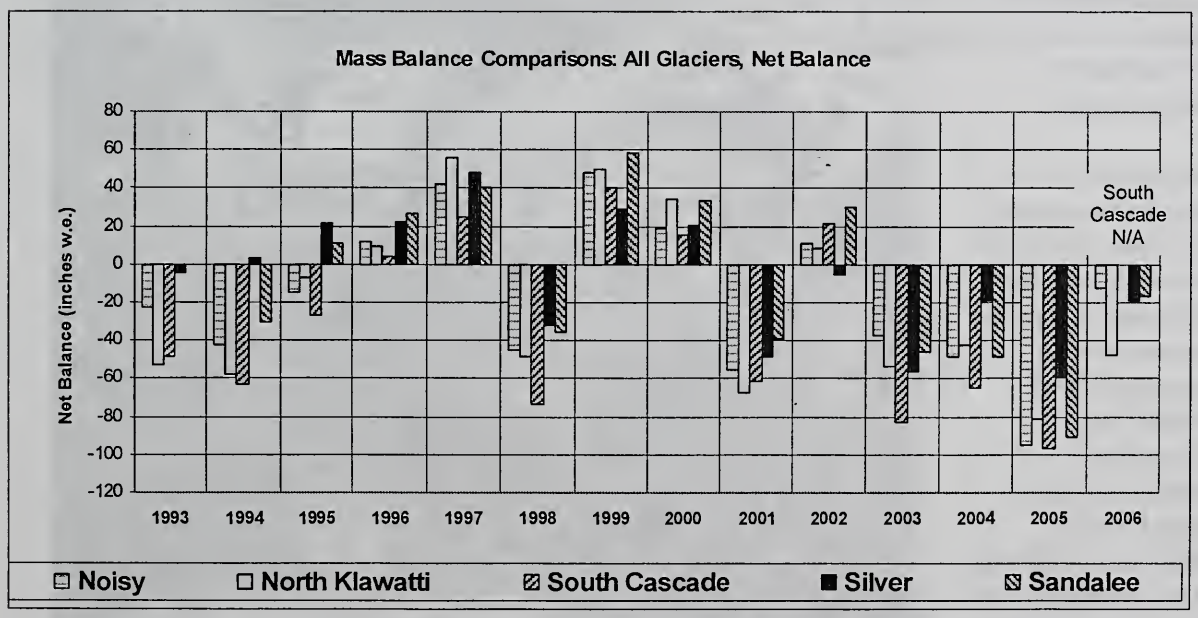

Figure 2. Net annual mass balance for the five glaciers monitored in the North Cascades.

MOUNT RAINIER GLACIER PAGE 2007

The National Park Service continues to monitor mass balance on Nisqually and Emmons glaciers, while tracking area and volume changes of all Mount Rainier Glaciers on a 20-year cycle. The annual program includes field measurements of snow depth, density, and snow and ice melt; annual terrestrial photography; and 10-year remapping of the index glaciers. This program is a cooperative venture between Mount Rainier National Park and North Cascades National Park.

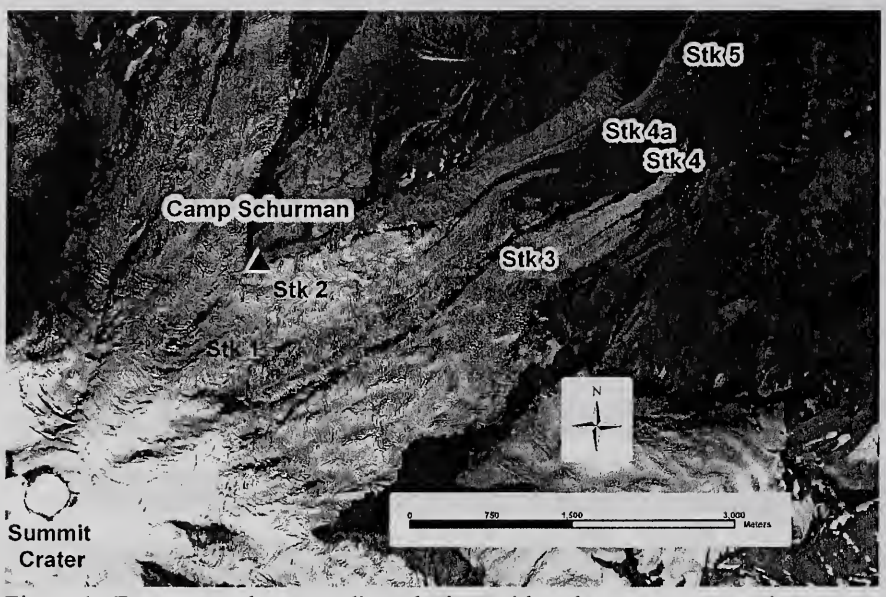

Figure 1. Emmons and surrounding glaciers with stake measurement sites.

Between April 3rd and May 24th in 2007 we measured snow depths and placed ablation stakes on the Nisqually and Emmons glaciers at ~11,000 feet and below (Figures 1 and 2). Data collected this year indicate 2007 was an average snow year. On Mount Rainier, glacier accumulation generally increases with altitude. For the south side of the mountain, 2007 follows the trend of increasing accumulation with elevation up to ~7100 feet and decreases above (Table 1). Accumulation on the Emmons Glacier generally peaks at ~10,000', our highest placed stake. In 2007 on the Emmons, we were unable to measure the maximum snow depth and altitude confidently at our highest location sites due to very dense layers within the snowpack. We will revisit these measurements at a later visit in the summer months.

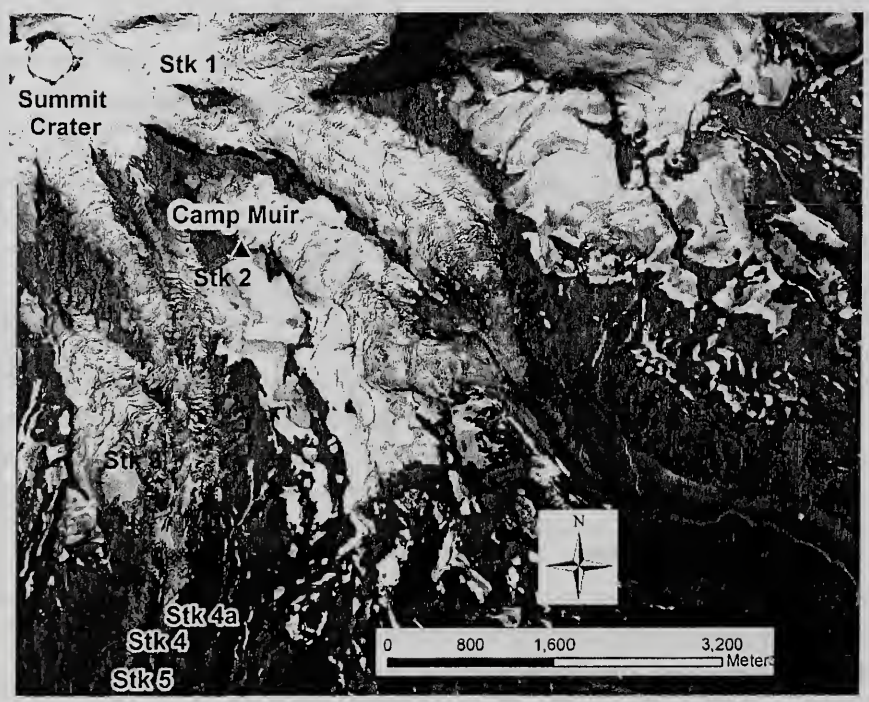

Figure 2. Nisqually and surrounding glaciers with stake measurement locations.

The higher elevation spring measurements were taken later than normal this year to accommodate the persisting cold temperatures and continual snow accumulation. Snowfall data at the nearby Paradise SNOTEL site indicate that our measurements on the lower elevation sites were taken near the time of maximum snowpack. Paradise

SNOTEL site measured maximum snow fall on April 27th with a difference of less than four inches water equivalent (w.e.) to our April 5th measurement.

Table 1	Altitude	Accumulation (inches w.e.)				
	feet	2004	2005	2006	2007	Average
Muir Snowfield & Nisqually Glacier	11,096	NA	NA	94	NA	94
	9,711	89	59	105	92	86
	7,136	151	78	144	165	135
	6,201	98	55	118	91	90
	6,135	83	39	146	88	89
	5,833	67	20	118	75	70
Paradise	5,121	72	35	84	70	65
Emmons Glacier	10,205	NA	NA	117	NA	117
	9,218	74	104	94	NA	81
	6,462	65	27	85	57	62
	5,577	48	25	66	48	58
	5,593	36	32	48	51	43
	5,183	32	9	30	31	25

NA describes years without direct measurement or in the case of 2007, data will be acquired in summer.

Table 1. Maximum accumulation (inches water equivalent) on Mount Rainier Glaciers, for the years 2004 through 2007. Snow depths were probed at 1 to 11 points at each site on an elevation contour. Provisional Data.

Snow coring equipment failure this year led to limited number of density sites and lack of recovering full core depths of the snow pack. A density of 0.5 (g/ml) was used glacier wide to calculate water equivalent (w.e.) except for the Paradise SNOTEL; altitude 5,121' with a density of 0.52.

We will return to the glaciers in mid July to confirm our spring snow depths, take additional density measurements, and record snow melt. On a fall visit (late September/early October) we will record final ablation measurements from the stakes. The end result of these seasonal measurements is the net balance, which is the sum of winter balance (always positive) and summer balance (always negative). The cumulative net balance allows us to see the overall trend in glacier health (Figure 3). For more information contact Jon_Riedel @nps.gov or Jeanna_Wenger@nps.gov.

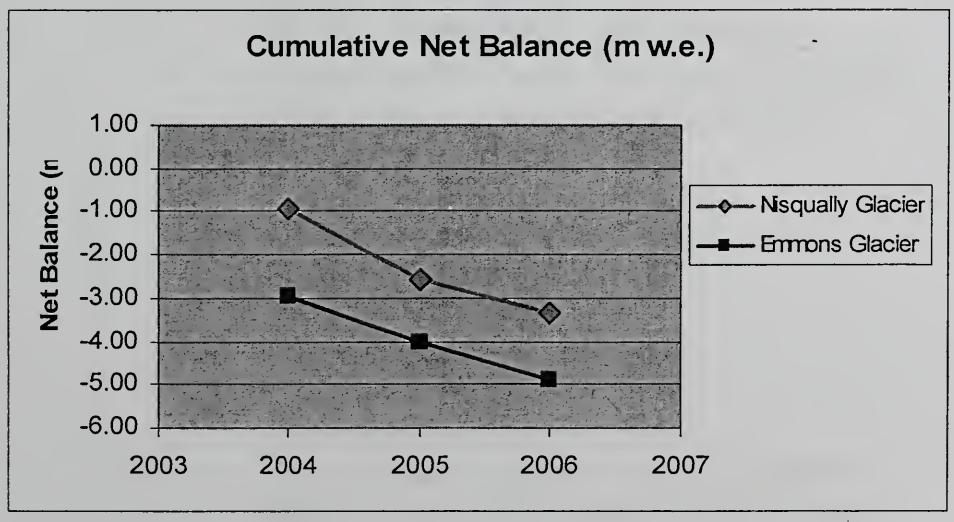

Figure 3. Cumulative net balance for the Nisqually and Emmons glaciers

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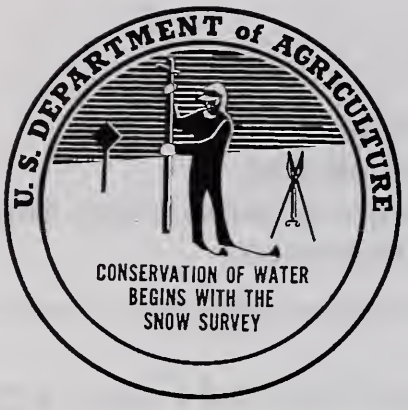
The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work*:

Canada	Ministry of Sustainable Resources Snow Survey, River Forecast Centre, Victoria, British Columbia
State	Washington State Department of Ecology Washington State Department of Natural Resources
Federal	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs
Local	City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Company Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakama Indian Nation Whatcom County Pierce County
Private	Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association Whitestone Reclamation District

*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



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